HP E5000 Messaging System for Microsoft Exchange Administrator Guide

Abstract

This document explains how to install, configure, and maintain all models of the HP E5000 Series Messaging System for Microsoft Exchange. The intended audience is decision makers, IT support staff, and project managers involved in planning and deploying Microsoft Exchange Server 2010 solutions. For more information on Exchange 2010 terminology and best practices, go to http://www.hp.com/solutions/activeanswers/exchange. For the latest version of this guide, go to www.hp.com/support/manuals. Select **Solution appliances** in the solutions group, and then select an E5000 product.

HP Part Number: 5697-1789
Published: June 2012
Edition: 3

© Copyright 2011, 2012 Hewlett-Packard Development Company, L.P.
Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Acknowledgments

Microsoft®, Windows®, and Windows Server® are registered trademarks of Microsoft Corporation in the United States and other countries.

Revision History

Edition	Date	Software Version	Description
First	February 2011	1.0	First release
Second	September 2011	2.01	Documented E5000 Configuration Wizard, Exchange Deployment Tool, E5000 System Manager, and System Management Homepage improvements. Added appendices for E5000 error codes and troubleshooting. Updated details for using the EMU CLI and physical interface. Updated information about network connections.
Third	August 2012	2.03	Documented new Recovery LUN Manager and Storage Viewer features. Documented E5000 Configuration Wizard, Exchange Deployment Tool, and Alerts and Email improvements. Added requirement for installing Exchange 2010 SP2. Updated information about network connections. Updated details for using the EMU CLI and physical interface.

Contents

1 HP E5000 Messaging Systems for Microsoft Exchange....7
Features....7
Hardware components....7
Software components....8
2 Preparing to install the messaging system....10
Exchange Server 2010 network requirements....10
Network connections....10
3 Installing the messaging system....14
Verify the kit contents....14
Locate and record the product number, serial number, and SAID number....14
Unpack and rack the messaging system hardware....14
Cable expansion disk enclosures....16
Power on the messaging system....17
Configure the EMU and iLO management processors....17
Accessing the messaging system....20
Adding expansion disk enclosures to an installed messaging system....21
Adding hard drives to an installed E5000 system....21
4 Configuring the messaging system software....23
Configuring server software....23
Deploying Microsoft Exchange Server 2010....26
Using Microsoft Exchange Jetstress and Load Generator (optional)....32
5 Monitoring and troubleshooting the messaging system....34
Using notification alerts....34
Configuring Alerts and Email....34
HP System Management Homepage....38
Starting the System Management Homepage application....38
System Management Homepage main page....38
Using the System Manager....42
Component LEDs....47
EMU CLI SHOW commands....55
Using Recovery LUN Manager....55
Using Storage Viewer....56
HP Support websites....58
HP Insight Remote Support software....58
Microsoft Systems Center Operations Manager....59
HP 1210m Volume Online Tool....59
Obtaining the Service Agreement ID....60
Locating the messaging system warranty entitlement label....60
6 Upgrading the messaging system....61
Determining the current messaging system software version....61
Upgrading E5000 software....61
Upgrading a component's firmware....62
Resolving errors after the HP 1210m controller upgrade....66
Resolving an EMU upgrade issue....67
Upgrading hardware components....67
Powering the system off and on....67
7 Removing and replacing hardware components....69
Customer self repair....69

Best practices for replacing components....69
During replacement of the failed component....69
Accessing component replacement videos....69
Identifying the spare part....70
Replaceable parts....70
Hot, warm, and cold swap components....73
Preventing electrostatic discharge....73
Verifying component failure....73
Verifying proper operation....74
Wait times for hard disks....74
Removing the system enclosure from the rack....75
Inserting the system enclosure into the rack....76
Removing and replacing the server interposer board....76
Removing and replacing the midplane board....78
Removing and replacing a SAS cable 81
Removing and replacing the SAS I/O module....81
Removing and replacing the fan module....83
Removing and replacing the power UID button assembly....84
Removing and replacing the power supply....85
Removing and replacing the HP Ethernet I/O module....86
Removing and replacing the PCIe module (with card)....87
Removing and replacing the EMU module....89
Removing and replacing the server blade backplane....90
Removing and replacing the server airflow baffle....92
Removing and replacing the front bezel (standard)....93
Removing and replacing the front bezel (full)....95
Removing and replacing the front LED display board in the rack (standard)....96
Removing and replacing the front LED display board (full)....97
Removing and replacing a drive drawer....99
Removing and replacing the drive drawer hard drive....104
Removing and replacing the drive drawer rails (side or bottom)....106
Removing and replacing the enclosure rails....111
Removing and replacing the rack rails....116
Removing and replacing server blades....116
Removing and replacing the server blade hard drive....117
Removing and replacing the 1210m controller board components....119
Removing and replacing the 1210m cache module....121
Removing and replacing the capacitor pack....124
Removing and replacing the Mezzanine NIC....126
8 Messaging system recovery....128
System Recovery DVD....128
Restoring the factory image with a DVD or USB flash device....128
Using a USB flash drive for messaging system recovery....128
Managing disks after a system restoration....129
Restoration in nonproduction environments....130
Restoration in production environments....130
9 Support and other resources....131
Contacting HP....131
HP technical support....131
Subscription service....131
Related information....131
HP websites....131
Microsoft websites....132
Rack stability....132

10 Documentation feedback....133
A Managing the EMU....134
CLI reference....134
Command line conventions....134
Operational groups....134
Authentication....135
Time functions....138
Inventory and status....141
Internet control....147
Server management....149
Enclosure control....152
Forensic....156
Session....158
Using the Enclosure Manager physical interface....161
Activate Button Menu....161
Reboot EM (bE)....161
Restore Factory Defaults (Fd)....162
Recover Lost Password (Fp)....162
Set DHCP IP Address (dH)....162
Set Link Local IP Address (LL)....162
Display Current IP Address (IP)....163
Exit Button Menu....163
B E5000 Error Codes....164
E5000 Configuration Wizard....164
System Manager....166
E5000 Exchange Deployment Tool....167
Firmware Update....168
Enclosure Manager Settings....170
Storage Viewer....170
Recovery LUN Manager....171
CSP WBEM Providers....171
CMP....172
C Troubleshooting....176
E5000 Configuration Wizard....176
Exchange Deployment Tool....177
Microsoft Exchange....178
Performance....179
D Regulatory compliance notices....180
Regulatory compliance identification numbers....180
Federal Communications Commission notice....180
FCC rating label....180
Class A equipment....180
Class B equipment....180
Modification....181
Cables....181
Canadian notice (Avis Canadien)....181
Class A equipment....181
Class B equipment....181
European Union notice....181
Japanese notices....182
Japanese VCCI-A notice....182
Japanese VCCI-B notice....182
Japanese VCCI marking....182

Japanese power cord statement....182
Korean notices....182
Class A equipment....182
Class B equipment....182
Taiwanese notices....183
BSMI Class A notice....183
Taiwan battery recycle statement....183
Vietnamese notice....183
Laser compliance notices....184
English laser notice....184
Dutch laser notice....184
French laser notice....184
German laser notice....185
Italian laser notice....185
Japanese laser notice....185
Spanish laser notice....186
Recycling notices....186
English recycling notice....186
Bulgarian recycling notice....187
Czech recycling notice....187
Danish recycling notice....187
Dutch recycling notice....187
Estonian recycling notice....188
Finnish recycling notice....188
French recycling notice....188
German recycling notice....188
Greek recycling notice....189
Hungarian recycling notice....189
Italian recycling notice....189
Latvian recycling notice....189
Lithuanian recycling notice....190
Polish recycling notice....190
Portuguese recycling notice....190
Romanian recycling notice....190
Slovak recycling notice....191
Spanish recycling notice....191
Swedish recycling notice....191
Turkish recycling notice....191
Battery replacement notices....192
Dutch battery notice....192
French battery notice....192
German battery notice....193
Italian battery notice....193
Japanese battery notice....194
Spanish battery notice....194
Glossary....195
Index....196

1 HP E5000 Messaging Systems for Microsoft Exchange

The HP E5000 Messaging System for Microsoft Exchange ("messaging system") is an integrated hardware-software solution that simplifies the initial deployment of Microsoft Exchange Server 2010. Each messaging system features HP server blades and dense disk storage in a single 3U enclosure (Figure 1 (page 8)). E5000 expansion disk enclosures are optional or standard depending on the model. The following models are available:

- HP E5300 G2 Messaging System for Microsoft Exchange
- HP E5500 G2 Messaging System for Microsoft Exchange
- HP E5700 G2 Messaging System for Microsoft Exchange

Features

The HP E5000 Messaging System provides the following advantages:

- Each system ships from the factory with preintegrated hardware and preloaded software, to significantly reduce the time and complexity of deploying Exchange 2010.
- Built on the HP converged application platform, which combines two server blades and dense storage drawer into a single enclosure
- Simplified deployment with presized, tested, and optimized configurations
- Lower overall TCO with reduced footprint and lower energy consumption
- Presized configurations deliver high availability in hours instead of days
- Specially developed setup tools (setup wizards) provide guided setup assistance, performing many of the complex and time-consuming tasks needed to configure and deploy a high availability messaging system. The setup tools make it easy to get both Windows and Exchange configured and running quickly.
- Automatic database-level recovery from failures
- HP and Microsoft management integration, including Microsoft Server Manager and System Center and HP Systems Insight Manager and Integrated Lights Out (iLO)

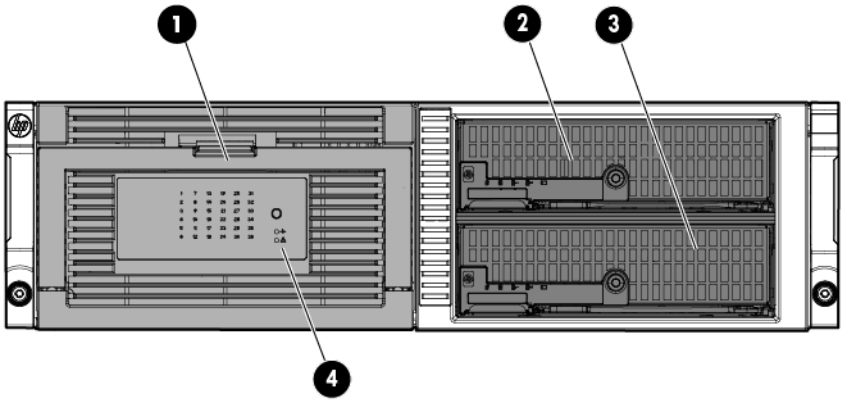
For more information about E5000 Messaging System features, go to:

http://www.hp.com/go/E5000

Hardware components

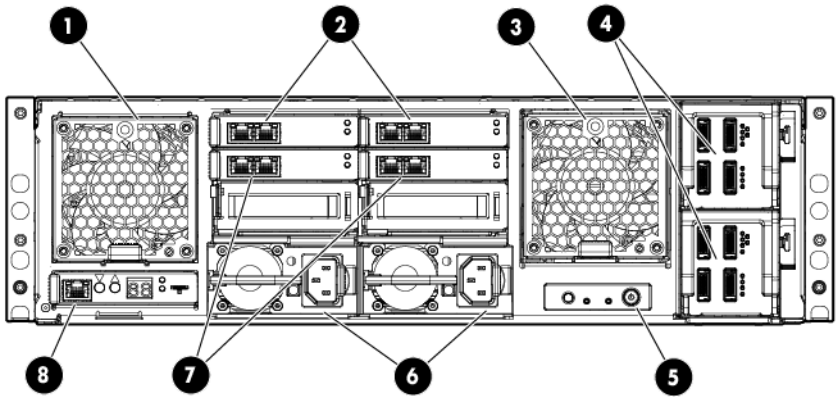
Figure 1 (page 8) and Figure 2 (page 8) show front and rear views of the messaging system.

Figure 1 Front view



1. Disk drive drawer
2. Server blade 1, Bay 1
3. Server blade 2, Bay 2
4. Chassis fault LED

Figure 2 Rear view



1. System fan
2. HP 2-port Ethernet I/O module (2) (These modules connect to the NIC located on the server blade motherboard)
3. Drive fan
4. SAS I/O module (2)
5. Power button
6. Power supply (2)
7. HP 2-port Ethernet I/O module. These modules (2) connect to the NIC located on top of the Mezzanine card on the server blade. Standard on the E5500 and E5700 and can be added as option for the E5300.
8. Management port (for iLO and Enclosure Manager Unit)

Software components

The E5000 Messaging System includes factory integration of the hardware and preloading of the E5000 software image, including Windows Server 2008 R2, which has been preinstalled and activated. The E5000 system configuration also includes the HP E5000 Messaging System

Configuration Wizard and HP E5000 Messaging System Exchange Deployment Tool, which are used to deploy the Exchange servers and storage in their optimal configurations.

The E5000 Configuration Wizard assists during the initial out of box setup and configuration of the messaging system. This tool helps to configure each of the customer-specific settings needed to prepare the server.

Exchange 2010 is then installed and configured using the E5000 Exchange Deployment Tool, which has been developed to automate many of the deployment tasks.

To provide ongoing monitoring and facilitate management, the messaging system includes the System Manager, which provides a snapshot view of the health and status of the messaging system and tools to manage firmware updates.

2 Preparing to install the messaging system

Before you install the messaging system, plan how you will integrate the system into your network and whether you will use Insight Remote Support (see "HP Insight Remote Support software" (page 58)). See the *HP E5000 Messaging System for Microsoft Exchange Installation Checklist* for general planning information:

http://h20564.www2.hp.com/portal/site/hpsc/public/kb/docDisplay/?docId=emr_na-c03168643

Exchange Server 2010 network requirements

Exchange Server 2010 includes a high-availability feature called DAG, which requires two networks:

- Client/MAPI network provides the following functions:
  - Server-to-server connectivity between the CAS, Hub Transport, and Mailbox server roles
  - Server-to-server communication with domain controllers, global catalog servers, and name services like DNS.
  - Management of Exchange client traffic such as Outlook and Outlook Web Access
  - Exchange client access to mail on CASs.
  - Replication, if the replication network is unavailable.
- Replication network provides the cluster heartbeat, Exchange Server 2010 log shipping, and database seeding or reseeding when available.

IMPORTANT: The Replication and MAPI networks should be isolated from each other, preventing Client/MAPI and Replication network traffic from being routed between networks.

Network connections

To facilitate manageability and diagnostic services on the messaging system, the server blades require network connections to the EMU. The EMU provides connections to two types of management processors:

- EMU processor
- iLO processor for each server blade

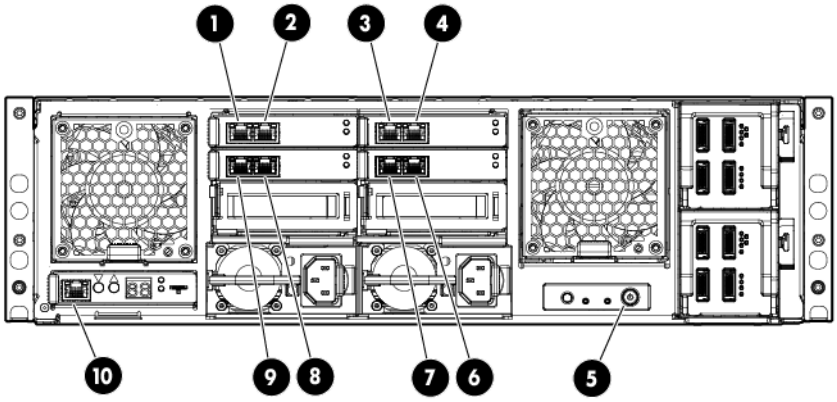
The EMU and iLO NIC port should be connected to the Client/MAPI network or to the dedicated management network if used. For additional information, see Figure 4 (page 12) and Figure 5 (page 13) and "Configure the EMU and iLO management processors" (page 17). Because many administrators use iLO remote management functions, including virtual console, HP recommends that you configure the EMU so that administrators have remote network access to the unit. The EMU and iLO management processors support DHCP and static network addressing. To simplify initial setup, the processors are configured for static addressing as follows:

- EMU: 10.0.0.10
- Server 1 iLO: 10.0.0.11
- Server 2 iLO: 10.0.0.12
- Subnet: 255.255.255.0

NOTE: The EMU must share a LAN with the server blades.

Figure 3 (page 11) shows the network ports on the rear of the messaging system.

Figure 3 Network ports



1. Server 1, NIC port 1
2. Server 2, NIC port 1
3. Server 1, NIC port 2
4. Server 2, NIC port 2
5. E5000 enclosure power button
6. Server 2, Mezzanine NIC, port 2
7. Server 1, Mezzanine NIC, port 2
8. Server 2, Mezzanine NIC, port 1
9. Server 1, Mezzanine NIC, port 1
10. Enclosure Manager NIC (includes iLO connections for both servers)

NOTE: E5300 Mezzanine NICs (6, 7, 8, and 9) are optional on E5300 servers.

For the initial configuration, the EMU port must be connected directly to the administrator's laptop or PC, as described in "Configure the EMU and iLO management processors" (page 17).

The E5500 and E5700 enclosures have more NIC ports than the E5300 enclosure, and they provide more network connection options. Figure 5 (page 13) shows the recommended management network configuration.

While alternate network ports can be used for network-based backup, they can also be used for EMU connectivity. As with the E5300, the Client/MAPI or Replication network can also be used to establish EM network connectivity to the servers.

NOTE: NIC teaming is not recommended or supported with these interfaces.

By default, the E5000 Configuration Wizard sets up the following networks:

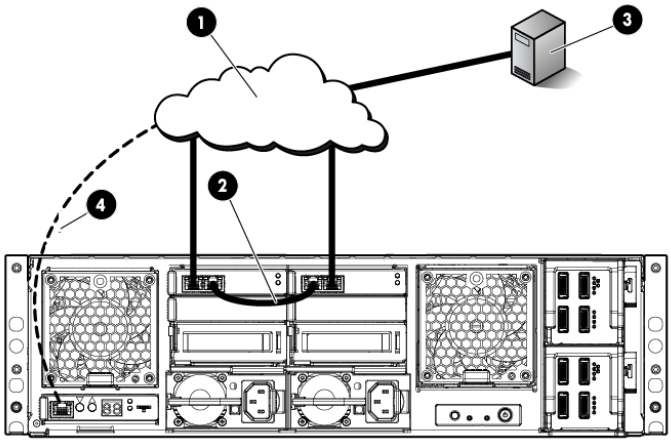
- Client/MAPI network
  - This network is labeled as the MAPI network on each server.
  - The default setting is dynamic (DHCP), but you can use the E5000 Configuration Wizard to configure static addressing.
- Replication network
  - The E5000 Configuration Wizard automatically sets these static addresses by default (but also allows you to change them):
    - Server 1: 10.0.0.1
    - Server 2: 10.0.0.2

  Use the short Ethernet cable shipped with the messaging system to connect the Replication network ports, as shown in Figure 4 (page 12) or Figure 5 (page 13).

- Management network
  - The default setting is dynamic (DHCP) addressing, but you can change this setting as needed.
  - HP recommends that the management network be on the same network as the EMU and iLO NIC port.
  - This NIC is not standard on the E5300 model.
- Alternate network
  - The default setting is dynamic (DHCP) addressing, but you can change this setting as needed.
  - This NIC is not standard on the E5300 model.

Figure 4 (page 12) shows the recommended E5300 network configuration expected by the E5000 Configuration Wizard described in "Configuring the messaging system software" (page 23).

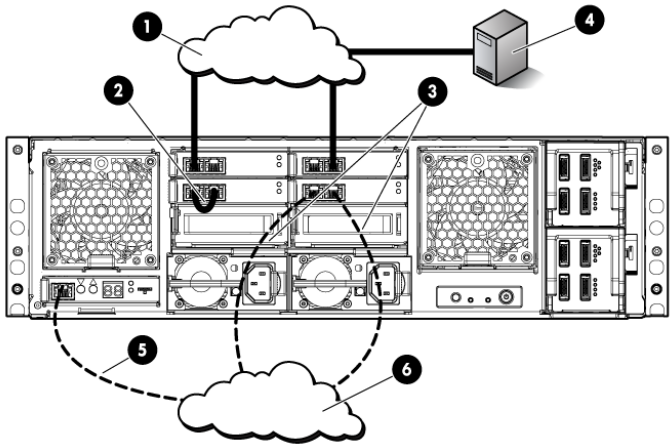
Figure 4 Recommended E5300 network configuration



1. Client/MAPI network
2. Replication network cable
3. Domain controller
4. Connection to EMU

Figure 5 (page 13) shows the typical E5500/5700 network configuration expected by the E5000 Configuration Wizard, as described in "Configuring the messaging system software" (page 23).

Figure 5 Typical E5500/5700 network configuration



1. Client/MAPI network
2. Replication network cable
3. Connections to management network
4. Domain controller
5. Connection to EMU
6. Management network

3 Installing the messaging system

This chapter explains how to install the messaging system hardware.

Verify the kit contents

Remove the contents, ensuring that you have all of the following components. If components are missing, contact HP technical support.

Hardware

- HP E5000 Messaging System base system configuration
- Expansion disk enclosures if deploying an E5700 configuration or if purchased as an upgrade option for other configurations
- Rail kit
- Power cords
- Short CAT5 Ethernet cable
- 0.5m mini SAS cable and 2m mini SAS cable per external disk enclosure

Media and documentation

- HP ProLiant Essentials Integrated Lights-Out Advanced Pack
- End User License Agreement
- HP E5000 System Recovery DVD
- Certificate of Authenticity Card
- Safety and Disposal Documentation CD

Locate and record the product number, serial number, and SAID number

Before you begin installation, locate and record the product number of the messaging system, serial number, and support contract service agreement ID (SAID) number.

The product number of the messaging system and serial number are located in three places:

- Top of the messaging system
- Back of the messaging system on a pull-out tab
- On the messaging system shipping box

The SAID number is listed on your service contract agreement (see "Obtaining the Service Agreement ID" (page 60)).

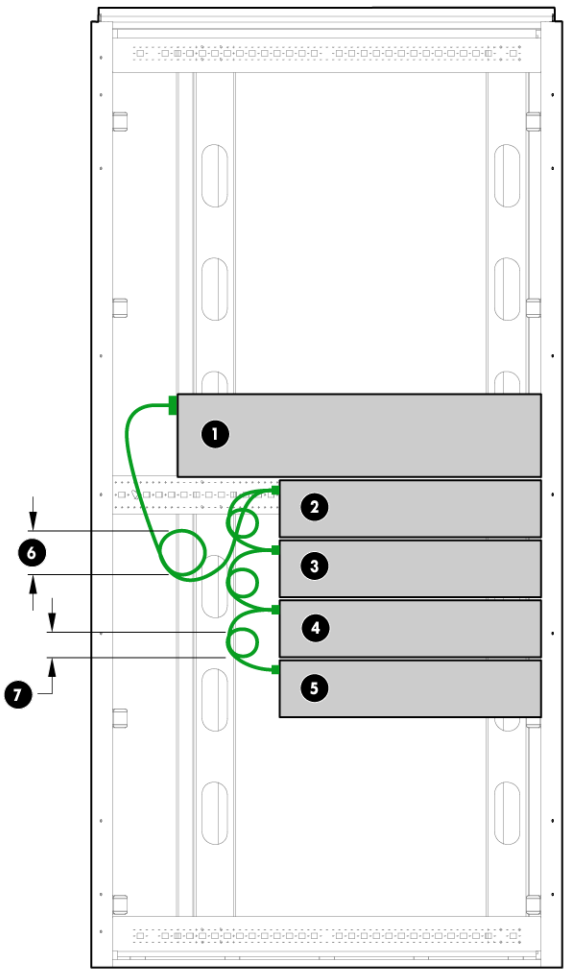
Unpack and rack the messaging system hardware

⚠ **WARNING!** The messaging system enclosure is heavy. Always use at least two people to move the messaging system into the rack.

1. If your messaging system is delivered in a rack, proceed to Step 2. If you ordered the messaging system without the rack, install the rail kit and enclosure in the rack using the installation instructions that are included with the rail kit.

IMPORTANT: Ensure that cabling in the back of the rack system does not interfere with system operation or maintenance. Bind cables loosely with cable ties and route the excess out of the way, along the side of the rack, to keep system components and indicators visible and accessible.

Figure 6 Messaging system installed in a rack



1. Messaging system enclosure

2-5. Expansion disk enclosures (optional)

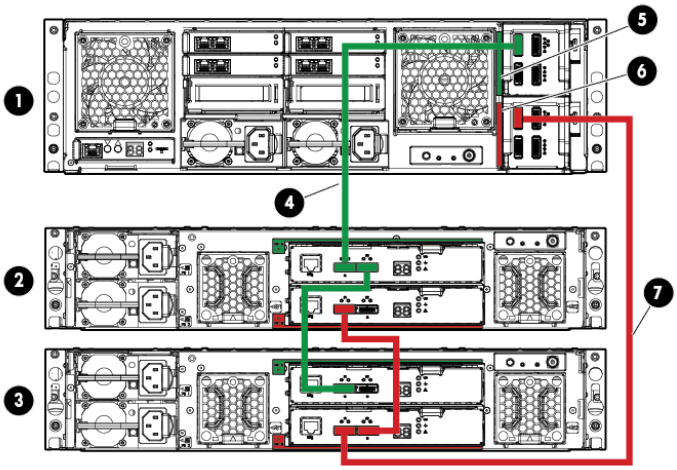
6-7. Cable connection, with no bend radius smaller than 5 cm

2. If you purchased expansion disk enclosures, rack and cable the expansion disk enclosures before moving to the next step. For recommended cabling, see "Cable expansion disk enclosures" (page 16).
3. Cable the messaging system to your network and attach the power cords. See "Rear view" (page 8) for connecting the power cables. For information on network configurations, see "Preparing to install the messaging system" (page 10).

Cable expansion disk enclosures

The following figures show the correct cabling of expansion disk enclosures to the messaging system chassis. Numbers represent the order of attachment. Figure 7 (page 16) shows an E5700 base configuration with two expansion disk enclosures.

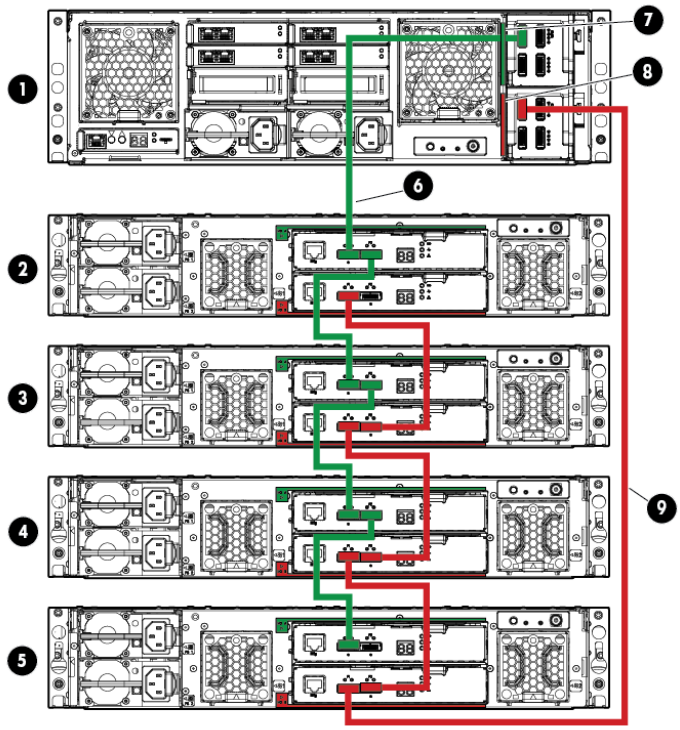
Figure 7 E5700 base configuration with two expansion disk enclosures



1. E5700
2-3. Expansion disk enclosures
4. SAS cable connecting expansion disk enclosure 1 (green cable)
5. Green color code for upper SAS I/O module
6. Red color code for lower SAS I/O module
7. SAS cable connecting expansion disk enclosure 2 (red cable)

Figure 8 (page 17) shows an E5700 maximum configuration with four expansion disk enclosures.

Figure 8 E5700 maximum configuration with four expansion disk enclosures



1. E5700

2–5. Expansion disk enclosures

6. SAS cable connecting expansion disk enclosure 1 (green cable)

7. Green color code for upper SAS I/O module

8. Red color code for lower SAS I/O module

9. SAS cable connecting expansion disk enclosure 2 (red cable)

Power on the messaging system

1. Power on any expansion disk enclosures.
2. Power on the messaging system by pushing the power button on the back of the chassis.

   Once the messaging system power is on, power on the server blades if they do not automatically power on.

Configure the EMU and iLO management processors

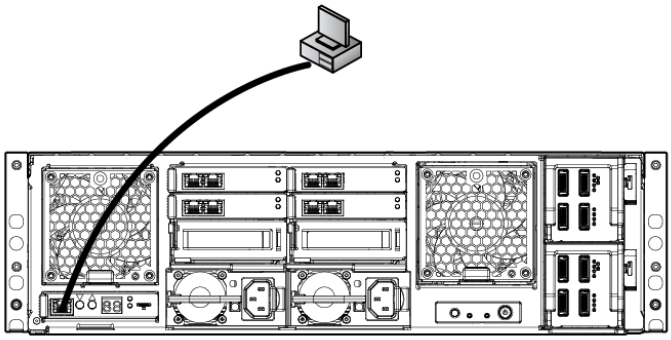
Before configuring the management processors, verify the following:

- You have determined whether the network ports on the server are to use DHCP or static addresses. If the network ports are to use static addresses, you must provide the addresses.
- The server NIC ports are cabled to the appropriate switches or VLANs (see"Network connections" (page 10)).
- For this step, the EMU port should not be connected to a switch. You can connect the EMU port to a switch after the EMU and iLO NICs are configured.

Configure the EMU and iLO management processors for both servers as follows:

1. Connect a system (the configuration system) in the environment or a laptop to the EMU port (Figure 9 (page 18)). You can use either a crossover or a regular Ethernet cable.

Figure 9 EMU NIC port connection



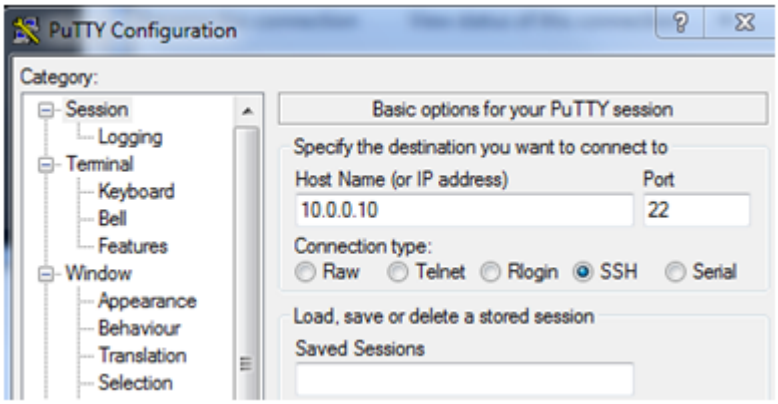
2. Configure the networking properties for the local system:
   a. Open Control Panel, select **Network Sharing Center** or **Network Connections**, and navigate to Local Area Connections.
   b. Select **Properties**→**Internet Protocol**, and then select **Properties**.
   c. If **Use the following IP address:** is selected, record values for the following items and restore them after completing the EMU and iLO setup:
      - IP address
      - Subnet mask
      - Default gateway
   d. Enter the following values:
      - IP address: 10.0.0.20
      - Subnet mask: 255.255.255.0
   e. Before continuing, ping the following IP addresses to test connectivity to the EMU and the iLO located in each of the servers: 10.0.0.10, 10.0.0.11, and 10.0.0.12. The EMU and iLO interfaces have been assigned IP addresses during factory setup. You must either update the factory values with site-specific static IP addresses or configure the management processors to use DHCP IP addressing.
3. Configure iLO on the server blades:
   a. Open a web browser and log in to iLO using the address: `http://10.0.0.11`. You are prompted to enter the user name and password. The password for the Administrator account is located on a tear-away label on the back of the server blade (Figure 11 (page 19)).

      After you have logged into iLO, HP recommends that you change the administrator password. To do so, select **User Administration** under **Administration** in the iLO management interface.
   b. Configure the network as required for your environment. Select **Network** under **Administration** in the iLO management interface. You can either enable DHCP or edit the IP address details and enter site-specific network settings. Click **Apply** to save your settings.
   c. Repeat the process on the other server blade. Open a web browser and log in to iLO using the address: `http://10.0.0.12`.

4. Configure the EMU:
   a. Connect to the Enclosure Manager software using an `ssh` compatible tool like PuTTY. In the PuTTY session basic options, enter the EMU IP address (10.0.0.10) and port (22), and select **SSH** for the connection type (Figure 10 (page 19)).

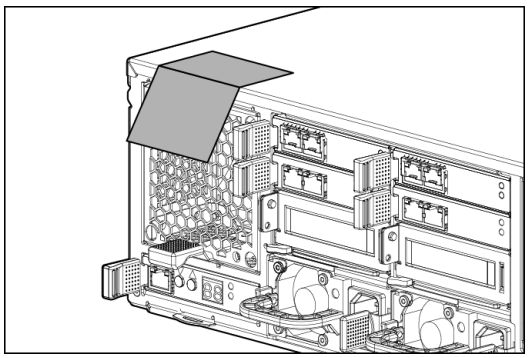
NOTE: See "Managing the EMU" (page 134) for information on using CLI commands.

Figure 10 Connecting to the Enclosure Manager software



   b. After you have connected to the EMU port, set the following attributes:
      - EMU (DNS) name
      - Rack name
      - EMU password (located on the tear-away label on the back of the server blade; see Figure 11 (page 19))
      - IP addressing method
        - To change the static IP address, type the command `set ipconfig static` at the command line prompt and follow the instructions.
        - To change the EMU addressing to DHCP, type `set ipconfig dhcp` at the command line prompt.

Figure 11 Tear-away label location



Example 1 Setting attributes

```
CustomerEMU-dnsName> set em name CustomerEMU-dnsName

CSP Enclosure Manager name changed to CustomerEMU-dnsName.

CustomerEMU-dnsName> set rack name CustomerRackName

Changed rack name to "CustomerRackName".
```

```
CustomerEMU-dnsName> set password

New Password: ********
Confirm     : ********
Changed password for the "Administrator" user account.

CustomerEMU-dnsName>
```

NOTE: You will not be able to connect to iLO or the EMU from the configuration system until you change the network settings on the configuration system.

5. Complete the configuration:
   a. Connect the EMU port to the appropriate switch/VLAN/subnet.
   b. Log in to the EMU using `ssh` and the newly assigned EMU name and validate connectivity. It is assumed that the EMU name is in the DNS.

Example 2 Verifying connectivity

```
CustomerEMU-dnsName> show server list all

Bay iLO Name                      iLO IP Address  Status   Power   UID
--- ----------------------------- --------------- -------- ------- ---
  1 ILOMXQ0110FJ9                 16.78.90.51     OK       On      Off
  2 ILOMXQ0110FHU                 16.78.90.113    OK       On      Off
Totals: 2 server blades installed, 2 powered on.
```

Accessing the messaging system

For initial messaging system configuration you must have console access for each of the server blades. You can use either a local I/O diagnostic (SUV) cable or an iLO connection. The iLO connection is the preferred method because it allows for remote access.

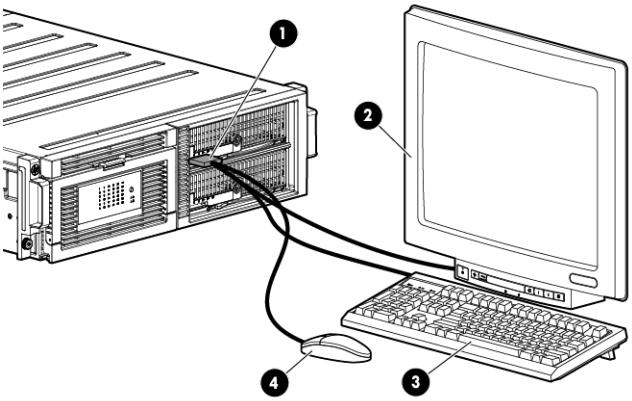
For remote access, open a web browser and enter the iLO name or IP address for the server blade located in Bay 1. For more information about IP addressing and subnets, see "Network connections" (page 10). Log in using the iLO administrator name and newly created password for that blade.

For instructions on using iLO, see the Integrated Lights Out user guide available from http://www.hp.com/go/ilo. On the iLO web page, select **More iLO Documentation**.

If you are using the direct connect method, connect the supplied SUV cable to the front of the messaging system server blades in the following sequence: keyboard, mouse, monitor cable, and monitor power cable.

NOTE: The keyboard, mouse, and monitor are not provided with the messaging system.

Figure 12 Keyboard, mouse, and monitor



1. Messaging system enclosure
2. Monitor
3. Keyboard
4. Mouse

Adding expansion disk enclosures to an installed messaging system

1. Rack the expansion disk enclosures.
2. Use the Exchange Management Console or the Exchange Management Shell to failover the databases from the Bay 1 server to the Bay 2 server.
3. Power on the expansion disk enclosures.

△ **CAUTION:** In some cases, when adding new expansion disk enclosures, disks are seen through a single path. This condition is reported as an error in the diagnostics initially performed by the E5000 Configuration Wizard. To fix this problem, power cycle the expansion disk enclosures by pressing and holding the button on the back of the unit, then pressing and holding the button once again to power them back on. Then run the E5000 Configuration Wizard from the **All Programs** shortcut.

For instructions, see "Configuring server software" (page 23).

The messaging system identifies the new storage and creates new LUNs.

4. Once the E5000 Configuration Wizard has completed, on the Bay 2 server, use the Exchange Management Console or the Exchange Management Shell to manually failover the databases from the Bay 2 server to the Bay 1 server.
5. Rebalance the databases using the `RedistributeActiveDatabases.ps1` script located (by default) at `\Program Files\Microsoft\Exchange Server\V14\scripts`. Run this script within the Exchange Management Console.
6. Within the Microsoft Exchange Management Console, select **New Mailbox Database**:
   a. Name the new database the next item in the sequence (for example, *DB10*).
   b. Select a server.
   c. Set the path based on the newly created LUNs.
7. Use Microsoft Exchange Management Console to add a mailbox copy.

Adding hard drives to an installed E5000 system

If you are running an E5000 system with fewer than the maximum number of hard drives, you can add drives as follows:

1. Install the new drives as described in "Replacing the drive drawer hard drive" (page 106).

2. Run the E5000 Configuration Wizard on the first server manually from the **All Programs** shortcut. The wizard recognizes the new storage and creates new LUNs. Exit the wizard at the first opportunity.
3. Run the wizard on the second server.
4. Within the Microsoft Exchange Management Console, select **New mailbox database** and name the new database sequentially. For example, if the previous database name is DB9, name the new database DB10. After naming the new database, complete the following steps:
   a. Select a server.
   b. Set the path based on the newly created LUNs.
5. Use Microsoft Exchange Management Console to add a mailbox copy on the other server.

4 Configuring the messaging system software

This chapter explains how to configure system software using the E5000 Configuration Wizard and how to deploy Microsoft Exchange Server 2010 using the E5000 Exchange Deployment Tool.

IMPORTANT: To configure the messaging system, you must run these tools on each server blade.

HP recommends that you fully complete the E5000 Configuration Wizard and E5000 Exchange Deployment Tool on the Bay 1 server blade before beginning to configure the Bay 2 server blade.

After you have completed the initial configuration, be sure to install any available software updates as described in "Upgrading E5000 software" (page 61).

Configuring server software

The E5000 should be powered on and the network ports cabled for your network configuration, including the EMU port. For configurations that use expansion disk enclosures, such as the E5700, all expansion disk enclosures should be cabled to the messaging system and powered on. Complete the following steps, first on server 1, and then on server 2. Do not start on the second server until you have completed the steps on server 1. When the server is powered on for the first time, it completes the initial Windows configuration process and then launches the E5000 Configuration Wizard.

To configure the software:

1. Enter your locale information in the Windows setup dialog box and accept the license terms. The Windows setup completes in approximately 15 minutes and the server reboots. Upon reboot, the server automatically logs on with the default password (HPinvent!) and the E5000 Configuration Wizard starts. After reading the welcome screen, click **Next**.

   NOTE: If the automatic logon does not occur and a message displays that the user name or password is incorrect, re-enter `Administrator` as the user name and `HPinvent!` as the password to complete the logon and start the E5000 Configuration Wizard.

2. Set and confirm the server Administrator password. The Administrator password is required only the first time you run the wizard. Click **Next**.

   NOTE: The Windows Server 2008 R2 default password policy requires a strong password as the server password for each server on the E5000 Messaging System. For more information on strong passwords for Windows Server 2008 R2, see the following Microsoft Technet article:

   http://technet.microsoft.com/en-us/library/cc736605(WS.10).aspx

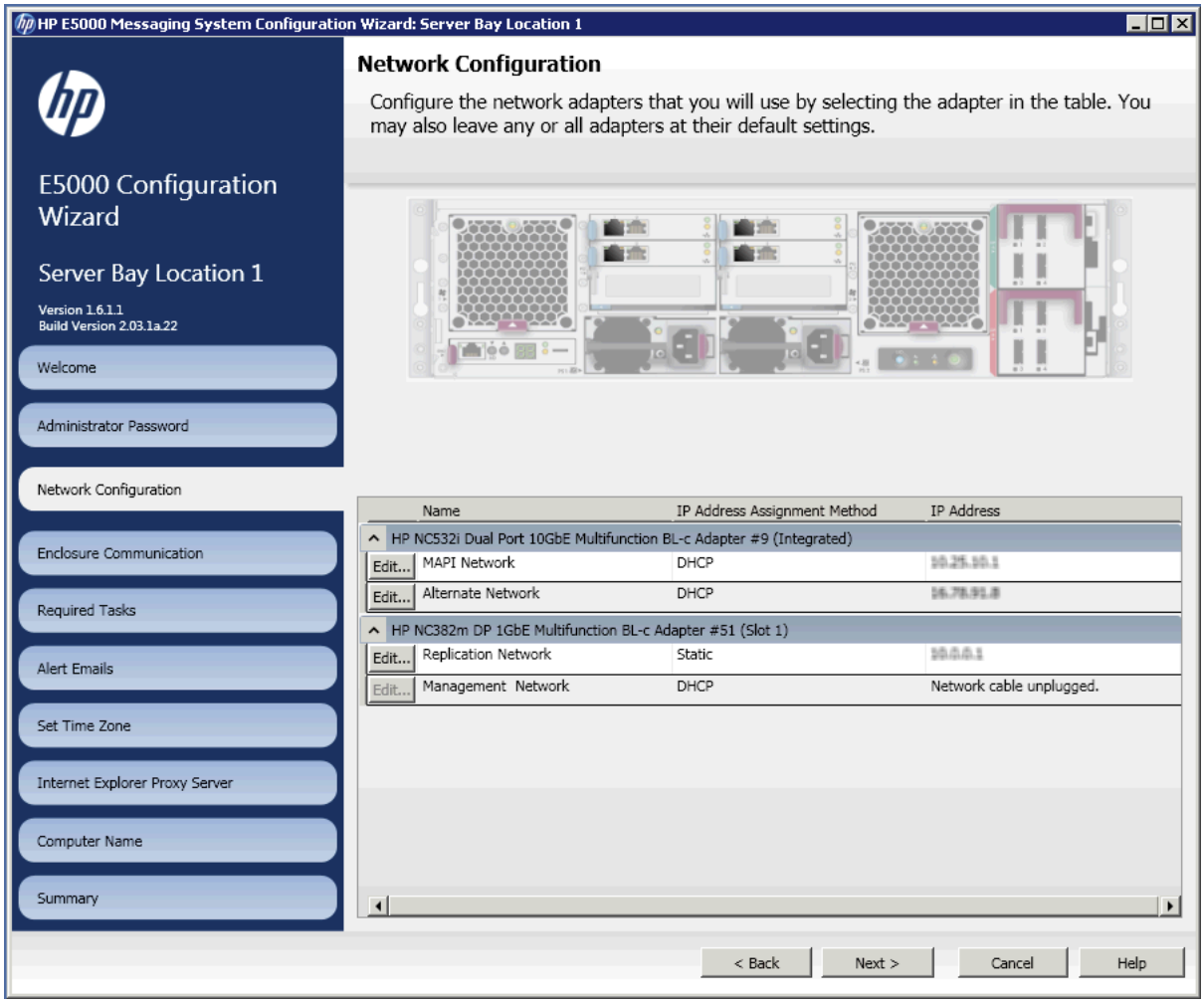
3. Set the network configuration. Review each network port configuration and either accept the default values or click **Edit** to change them. Click **Next** when finished.

IMPORTANT:

- By default, the Replication network is set to a static network (10.0.0.0/30) with IP 10.0.0.1 on the first node and 10.0.0.2 on the second node. A cable directly connects the two ports. If these addresses conflict with addresses on your network, reconfigure them to some other unused static network. If the replication ports will be connected to a switch, you might have to change the network settings. You can either automatically configure with DHCP or manually enter a specific IP address.
- Be careful not to put the Client/MAPI and Replication networks on the same subnet. If you attempt to do so, the wizard displays a warning.

Figure 13 (page 24) shows an E5500/5700 configuration that has four networks per server: Client/MAPI, Replication, Management, and Alternate. The E5300 configuration has two (standard) networks per server: Client/MAPI and Replication.

Figure 13 Network configuration



4. Enter the EMU Administrator password and then click **Next**.

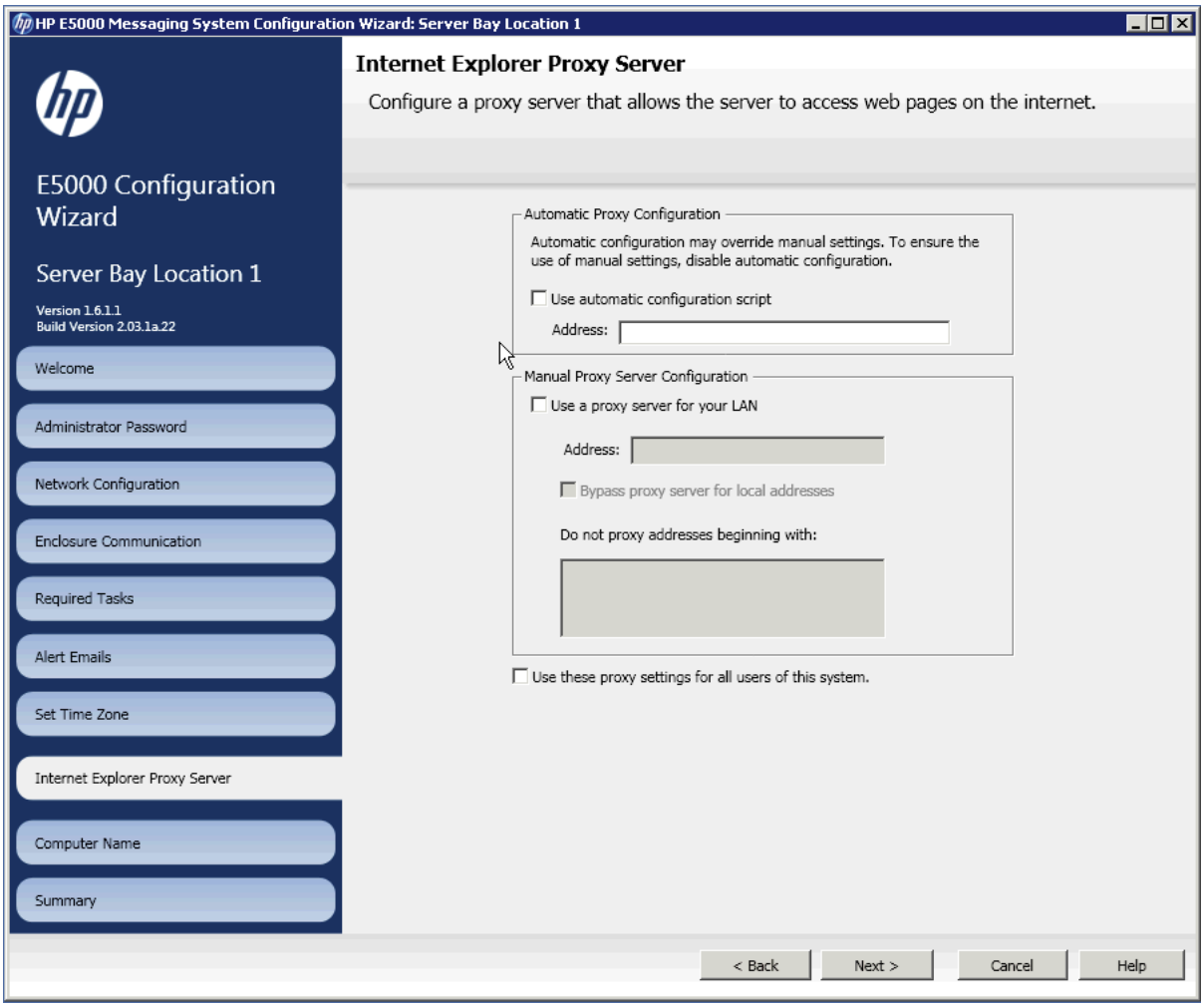
   The default password is printed on a label attached to the underside on the EMU module. The default password is also printed on a tear-away label attached to the rear of the enclosure (Figure 11 (page 19)). Remove the tear-away label and store it in a safe place. After you enter the password, an animated icon indicates that the wizard is verifying connection to the enclosure.

5. The wizard displays the status of tasks it must complete before continuing. If the wizard finds errors, it reports them and stops. You must exit the wizard, fix the errors and restart the wizard from the **All Programs** menu on your system.

NOTE: If the wizard reports fan warnings, replace the fan module as soon as possible.

6. Configure Alerts and Email to send email notification of system events (see "Configuring Alerts and Email" (page 34)).
7. Set the time zone and then click **Next**. The correct local time zone is set when the server joins a domain.
8. Configure the Internet Explorer Proxy Server settings (see Figure 14 (page 25)) and then click **Next**.

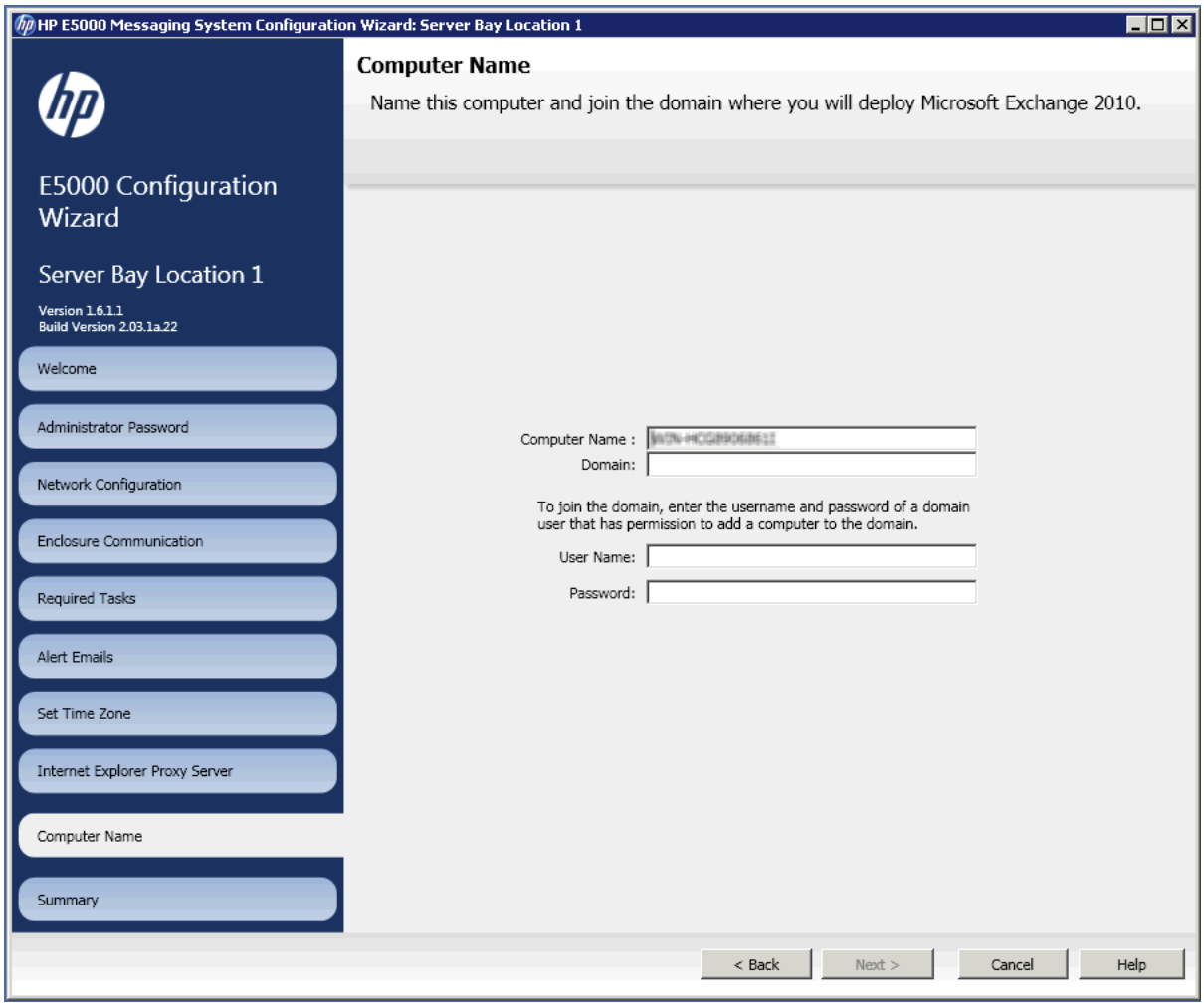
Figure 14 Internet Explorer proxy server


HP E5000 Messaging System Configuration Wizard: Server Bay Location 1
E5000 Configuration Wizard
Server Bay Location 1
Version 1.6.1.1
Build Version 2.03.1a.22
Welcome
Administrator Password
Network Configuration
Enclosure Communication
Required Tasks
Alert Emails
Set Time Zone
Internet Explorer Proxy Server
Computer Name
Summary
Internet Explorer Proxy Server
Configure a proxy server that allows the server to access web pages on the internet.
Automatic Proxy Configuration
Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.
Use automatic configuration script
Address:
Manual Proxy Server Configuration
Use a proxy server for your LAN
Address:
Bypass proxy server for local addresses
Do not proxy addresses beginning with:
Use these proxy settings for all users of this system.
< Back
Next >
Cancel
Help

9. Set the computer name and join a domain (see Figure 15 (page 26)). Enter the computer name and the name of the domain that the computer will join. Enter the name and password of a user (typically Administrator) who has permission to add the computer to the domain. The Administrator password is required only the first time you run the wizard. Click **Next** when finished.

IMPORTANT: Be sure to record the name of the first server. You will need that name when you configure the second server.

Figure 15 Computer name



10. Review the summary report and complete the configuration. The Summary screen lists the configuration settings you have made.
11. Click **Apply Settings** to apply the configuration settings or **Back** to modify them. When you are ready to accept the settings, click **Finish** to reboot the server. If you do not want to reboot at this time, clear the **Reboot after exiting the wizard** box. The server must be rebooted to join the domain and is also a required step prior to deploying Microsoft Exchange Server 2010.

NOTE: The server blades contain redundant storage controllers. When a server reboots, one of the controllers shuts down. The partner server sees this event as a redundancy loss and creates a log entry: "drive array controllers are no longer redundant". You can ignore the message if it coincides with a reboot you initiated.

Continue with the next procedure, "Deploying Microsoft Exchange Server 2010" (page 26), and complete the setup on the Bay 1 server before setting up the Bay 2 server.

Deploying Microsoft Exchange Server 2010

Follow this procedure to deploy Microsoft Exchange Server 2010. Complete the deployment of Microsoft Exchange Server 2010 on the Bay 1 server blade before beginning the configuration of the Bay 2 server blade.

IMPORTANT: Before proceeding:

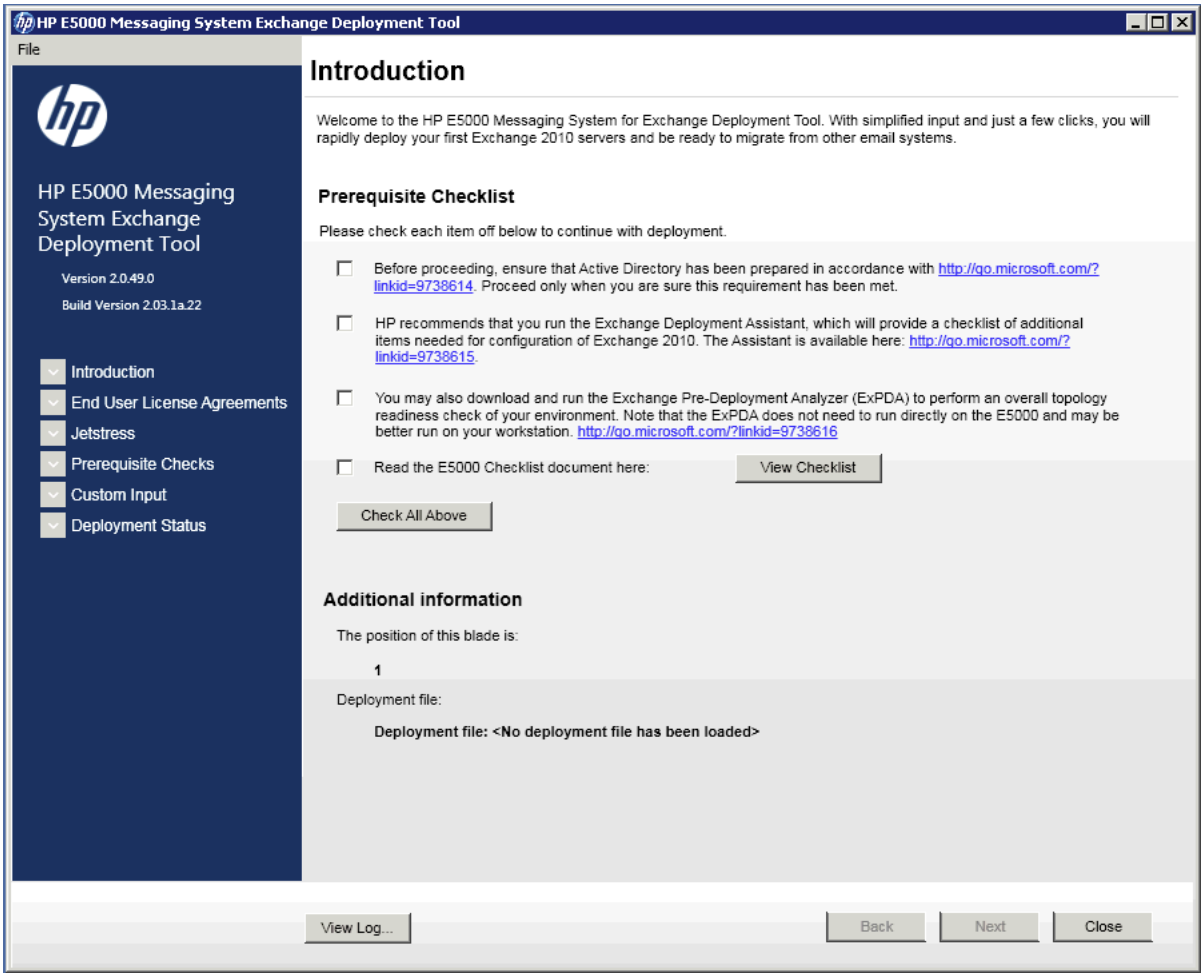
- Install any available software updates as described in "Upgrading E5000 software" (page 61).
- Ensure that the Active Directory and domains have been configured. For more information, see http://technet.microsoft.com/en-us/library/bb125224.aspx. You must also provide a witness server to be used by the DAG. For details on selecting and configuring a server to be a witness server, see http://technet.microsoft.com/en-us/library/dd351107.aspx .

1. Log in to the Bay 1 server. If you have completed this procedure for the Bay 1 server, log in to the Bay 2 server now.

   When you log in, the Windows Security screen appears. Log in using the domain administrator credentials you used to join the server to the domain. The E5000 Exchange Deployment Tool starts automatically and displays the Introduction window.

NOTE: If you do not log in as the domain administrator, the E5000 Exchange Deployment Tool will not run. You must log out and log in as the domain administrator.

Figure 16 Deployment introduction


HP E5000 Messaging System Exchange Deployment Tool
File
HP E5000 Messaging System Exchange Deployment Tool
Version 2.0.49.0
Build Version 2.03.1a.22
Introduction
End User License Agreements
Jetstress
Prerequisite Checks
Custom Input
Deployment Status
Introduction
Welcome to the HP E5000 Messaging System for Exchange Deployment Tool. With simplified input and just a few clicks, you will rapidly deploy your first Exchange 2010 servers and be ready to migrate from other email systems.
Prerequisite Checklist
Please check each item off below to continue with deployment.
Before proceeding, ensure that Active Directory has been prepared in accordance with http://go.microsoft.com/?linkid=9738614. Proceed only when you are sure this requirement has been met.
HP recommends that you run the Exchange Deployment Assistant, which will provide a checklist of additional items needed for configuration of Exchange 2010. The Assistant is available here: http://go.microsoft.com/?linkid=9738615.
You may also download and run the Exchange Pre-Deployment Analyzer (ExPDA) to perform an overall topology readiness check of your environment. Note that the ExPDA does not need to run directly on the E5000 and may be better run on your workstation. http://go.microsoft.com/?linkid=9738616
Read the E5000 Checklist document here:
View Checklist
Check All Above
Additional information
The position of this blade is:
1
Deployment file:
Deployment file: <No deployment file has been loaded>
View Log...
Back
Next
Close

HP recommends that you run the tests in the Prerequisites checklist. For detailed information on Microsoft prerequisites, visit the links displayed on Figure 16 (page 27).

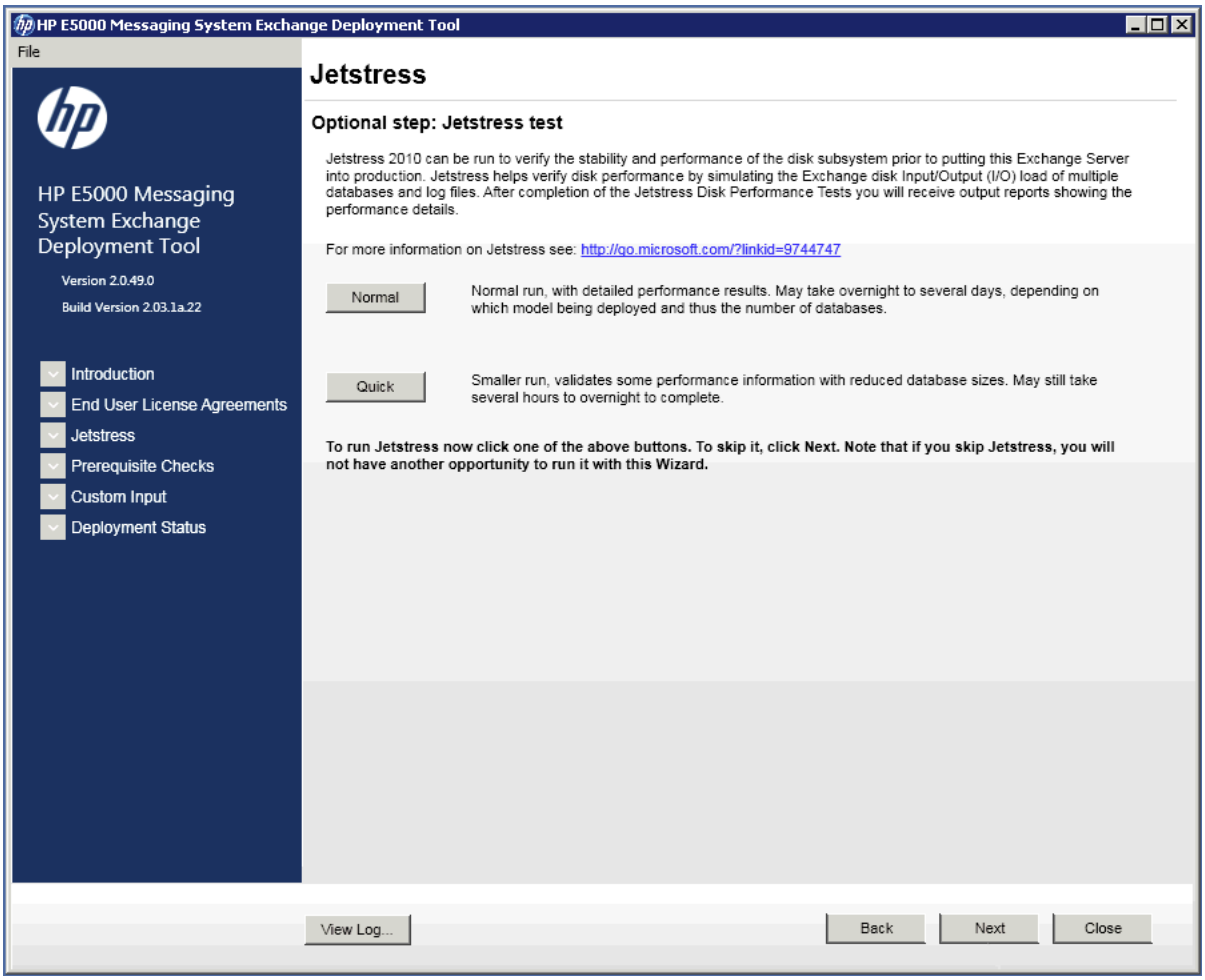
After you have run the tests, click **Next**.

NOTE: You need a properly configured Internet Explorer browser, including proxy configuration (if applicable), to access the links.

2. The End User License Agreement Confirmation screen appears. After reading and accepting the agreements, click **Next**.

   The Jetstress screen appears (Figure 17 (page 28)):

Figure 17 Jetstress Tools


HP E5000 Messaging System Exchange Deployment Tool
File
HP E5000 Messaging System Exchange Deployment Tool
Version 2.0.49.0
Build Version 2.03.1a.22
Introduction
End User License Agreements
Jetstress
Prerequisite Checks
Custom Input
Deployment Status
Jetstress
Optional step: Jetstress test
Jetstress 2010 can be run to verify the stability and performance of the disk subsystem prior to putting this Exchange Server into production. Jetstress helps verify disk performance by simulating the Exchange disk Input/Output (I/O) load of multiple databases and log files. After completion of the Jetstress Disk Performance Tests you will receive output reports showing the performance details.
For more information on Jetstress see: http://go.microsoft.com/?linkid=9744747
Normal
Normal run, with detailed performance results. May take overnight to several days, depending on which model being deployed and thus the number of databases.
Quick
Smaller run, validates some performance information with reduced database sizes. May still take several hours to overnight to complete.
To run Jetstress now click one of the above buttons. To skip it, click Next. Note that if you skip Jetstress, you will not have another opportunity to run it with this Wizard.
View Log...
Back
Next
Close

3. If you choose to run a Jetstress test, select the type of Jetstress test. The default is set to skip Jetstress (click Next to skip the test).
   - A normal run of the Jetstress test provides a baseline benchmark of the system. HP recommends that you run the test now, but only if you have sufficient time before deploying the server into production.

     NOTE:

     - A normal run of the Jetstress test can take 24 hours to complete.
     - Until the Exchange Deployment Tool is run on the final node, the system configuration is listed as unsupported in the system tray. Ignore the system tray status until Exchange has been deployed on all nodes.

   - A quick run of the Jetstress test does not provide detail performance results but can be used to validate some of the configuration information.

     Choose a quick run if you cannot dedicate the time for a normal Jetstress test. For more information about Jetstress, see "Using Microsoft Exchange Jetstress and Load Generator (optional)" (page 32).

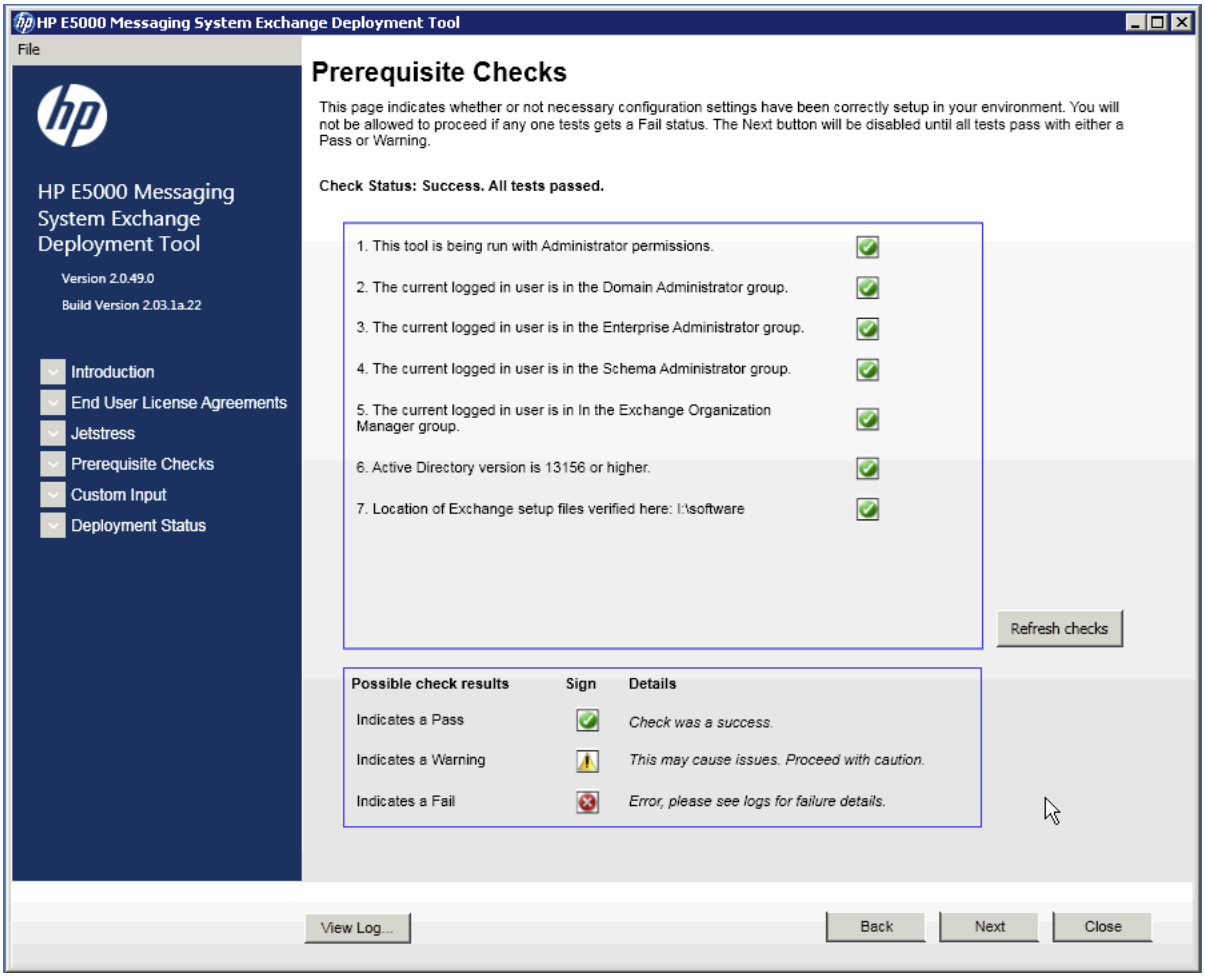
Once you make a selection or if you choose to skip the Jetstress test, click **Next**. The Prerequisite Checks screen appears (Figure 18 (page 29)).

4. The Prerequisite Checks screen displays the status check results for the configuration settings in your environment.

   If a test fails, the **Next** button is disabled and you are not allowed to proceed. Check the logs for the configuration setting failure details and correct the failed setting. Click **Refresh checks** to verify the settings.

   If all tests pass with either a green checkmark or warning, the **Next** button is enabled. Click **Next** to start deployment of the Exchange Administration Tools.

Figure 18 Prerequisite Checks


HP E5000 Messaging System Exchange Deployment Tool
File
HP E5000 Messaging System Exchange Deployment Tool
Version 2.0.49.0
Build Version 2.03.1a.22
Introduction
End User License Agreements
Jetstress
Prerequisite Checks
Custom Input
Deployment Status
Prerequisite Checks
This page indicates whether or not necessary configuration settings have been correctly setup in your environment. You will not be allowed to proceed if any one tests gets a Fail status. The Next button will be disabled until all tests pass with either a Pass or Warning.
Check Status: Success. All tests passed.
1. This tool is being run with Administrator permissions.
2. The current logged in user is in the Domain Administrator group.
3. The current logged in user is in the Enterprise Administrator group.
4. The current logged in user is in the Schema Administrator group.
5. The current logged in user is in In the Exchange Organization Manager group.
6. Active Directory version is 13156 or higher.
7. Location of Exchange setup files verified here: I:\software
Refresh checks
Possible check results
Sign
Details
Indicates a Pass
Check was a success.
Indicates a Warning
This may cause issues. Proceed with caution.
Indicates a Fail
Error, please see logs for failure details.
View Log...
Back
Next
Close

5. After the installation of the Exchange Administration Tools finishes, complete the fields on the Custom Input window.

   When deploying to the Bay 1 server, select **First blade**. The E5000 Exchange Deployment Tool automatically detects whether any servers are found in the existing Exchange organization (when existing is selected). When deploying to the Bay 2 server, select **Second blade**. The name of the second blade of Bay 1 server is autodetected.

   Complete each item on this screen as needed for your deployment:

   - **New or existing Availability Group (DAG) name**. The E5000 Exchange Deployment Tool automatically detects if any DAGs are found in the existing Exchange organization. Accept the default name or enter a new name of a DAG that already exists.
   - **Availability Group IP address**. Using an IP address of 0.0.0.0 configures the DAG to use DHCP. You can update the configured IP address later using the Exchange Management

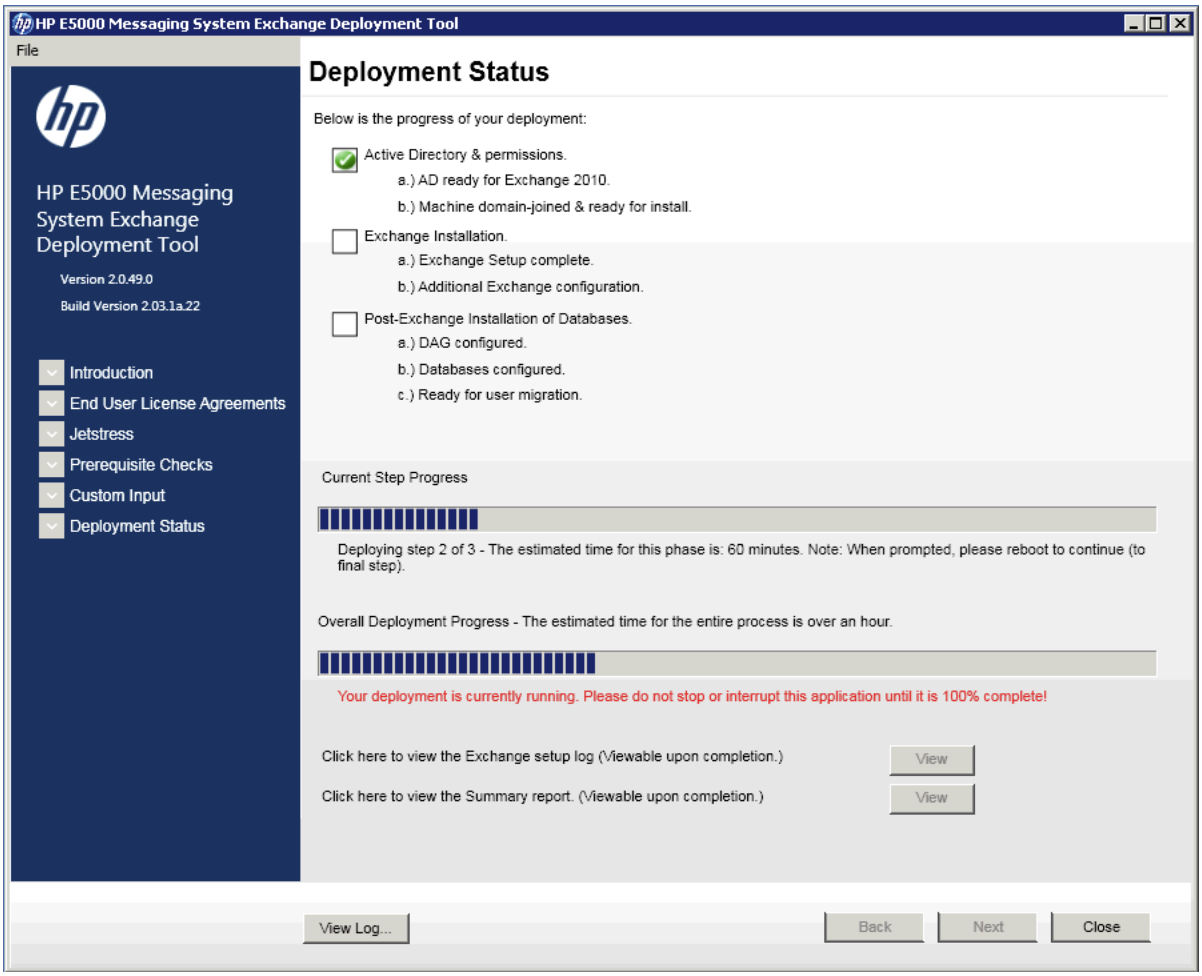
Shell, or additional addresses can be added later using the Set-AvailabilityGroup PowerShell command.

- **Witness server name**. See http://technet.microsoft.com/en-us/library/dd351107.aspx for information about special considerations if placing the suggested default witness server on a domain controller.
- **Witness directory**. Specify the local path on the witness server.
- **Name prefix**. Use the suggested default name or enter a new name. The E5000 Exchange Deployment Tool appends numbers to the name and verifies that the name is unique at the organization level (an Exchange 2010 requirement).
- **Client Access Server (CAS)** is Internet facing. For more information, see http://technet.microsoft.com/en-us/library/dd351198.aspx .
- **New or Existing CAS array**. If a new array, enter a name or select from the dropdown list for existing arrays (if detected).
- **Enter the name of your load-balanced CAS array** that is set on the database property. If no load-balanced CAS array is available, see:
  - http://go.microsoft.com/?linkid=9738617
  - http://go.microsoft.com/?linkid=9738618
- **Enable Error Reporting**. For more information, see http://go.microsoft.com/?linkid=9738619.
- **Create Public Folder database**. To connect to Exchange 2010 Microsoft Entourage or Outlook 2003, clients require a public folder database. The E5000 Exchange Deployment Tool runs Exchange setup to create the public folder database for you. This option is available only on the first Exchange 2010 Mailbox server being deployed. The public folders on this system are designed primarily for Free-Busy usage and not large-scale folder replicas or other applications. The database is created in `h:\ExchangeDatabases\PF\Exch2010PublicFolder.edb`.
- **Exchange 2003 bridgehead server.** Use the parameter to specify an Exchange 2003 bridgehead server that is located in the routing group to which you plan to create the initial routing group connector. A routing group connector is required for mail flow between Exchange 2010 and Exchange 2003 when these Exchange server versions coexist in the same organization.
- **Customer Experience Improvement Program**. See http://go.microsoft.com/?linkid=9738620.

6. Click **Deploy** to start the tools deployment process. This process typically requires about 1 hour and 30 minutes.

   The E5000 Exchange Deployment Tool displays the Deployment Status window (Figure 19 (page 31)).

Figure 19 Deployment status


HP E5000 Messaging System Exchange Deployment Tool
File
HP E5000 Messaging System Exchange Deployment Tool
Version 2.0.49.0
Build Version 2.03.1a.22
Introduction
End User License Agreements
Jetstress
Prerequisite Checks
Custom Input
Deployment Status
Deployment Status
Below is the progress of your deployment:
Active Directory & permissions.
a.) AD ready for Exchange 2010.
b.) Machine domain-joined & ready for install.
Exchange Installation.
a.) Exchange Setup complete.
b.) Additional Exchange configuration.
Post-Exchange Installation of Databases.
a.) DAG configured.
b.) Databases configured.
c.) Ready for user migration.
Current Step Progress
Deploying step 2 of 3 - The estimated time for this phase is: 60 minutes. Note: When prompted, please reboot to continue (to final step).
Overall Deployment Progress - The estimated time for the entire process is over an hour.
Your deployment is currently running. Please do not stop or interrupt this application until it is 100% complete!
Click here to view the Exchange setup log (Viewable upon completion.)
View
Click here to view the Summary report. (Viewable upon completion.)
View
View Log...
Back
Next
Close

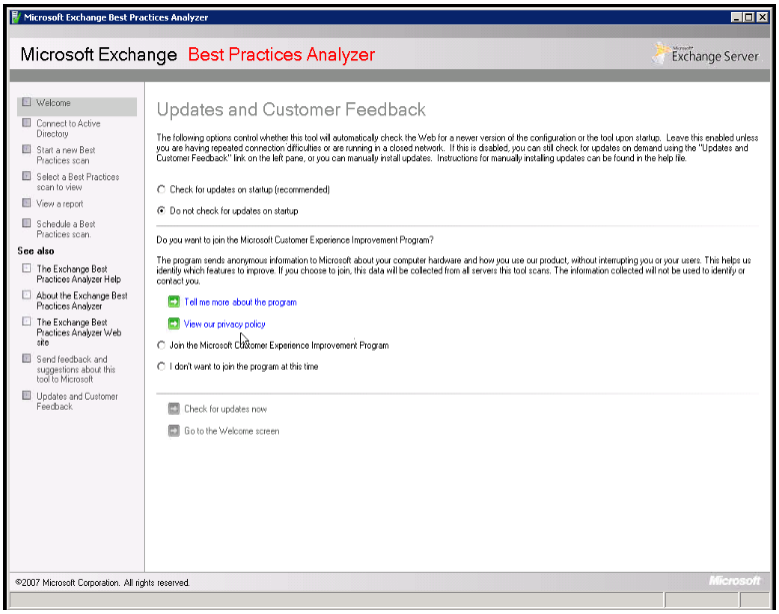
When the process completes, you are prompted to reboot the server. After the reboot, log in again with Exchange administrator credentials (see http://technet.microsoft.com/en-us/library/ee681663.aspx) to complete the deployment (the E5000 Exchange Deployment Tool reappears automatically when you log in).

7. After deployment completes, the E5000 Exchange Deployment Tool displays a success message and prompts you to run the Microsoft Exchange Best Practices Analyzer.

IMPORTANT: HP recommends that you do not run the Analyzer until the E5000 Exchange Deployment Tool completes on the second server. Complete the E5000 Configuration Wizard and the E5000 Exchange Deployment Tool on the Bay 2 server now before continuing.

8. After Microsoft Exchange is deployed on the Bay 2 server, accept the prompt to run the Analyzer. The Microsoft Exchange Best Practices Analyzer window appears.

Figure 20 Microsoft Exchange Best practices analyzer


Microsoft Exchange Best Practices Analyzer
Microsoft Exchange Best Practices Analyzer
Exchange Server
Welcome
Connect to Active Directory
Start a new Best Practices scan
Select a Best Practices scan to view
View a report
Schedule a Best Practices scan
See also
The Exchange Best Practices Analyzer Help
About the Exchange Best Practices Analyzer
The Exchange Best Practices Analyzer Web site
Send feedback and suggestions about this tool to Microsoft
Updates and Customer Feedback
Updates and Customer Feedback
The following options control whether this tool will automatically check the Web for a newer version of the configuration or the tool upon startup. Leave this enabled unless you are having repeated connection difficulties or are running in a closed network. If this is disabled, you can still check for updates on demand using the "Updates and Customer Feedback" link on the left pane, or you can manually install updates. Instructions for manually installing updates can be found in the help file.
Check for updates on startup (recommended)
Do not check for updates on startup
Do you want to join the Microsoft Customer Experience Improvement Program?
The program sends anonymous information to Microsoft about your computer hardware and how you use our product, without interrupting you or your users. This helps us identify which features to improve. If you choose to join, this data will be collected from all servers this tool scans. The information collected will not be used to identify or contact you.
Tell me more about the program
View our privacy policy
Join the Microsoft Customer Experience Improvement Program
I don't want to join the program at this time
Check for updates now
Go to the Welcome screen
©2007 Microsoft Corporation. All rights reserved.
Microsoft

The Analyzer is located in the Toolbox node in the Exchange Management Console. You can use the Analyzer to connect to Active Directory, start a scan, and perform other Exchange operations.

For more information about Microsoft Exchange Server 2010 and to download the complete help file, see *Exchange Server 2010* at http://technet.microsoft.com/en-us/library/bb124558.aspx.

Next steps

The messaging system is now installed and configured in a DAG with the number of database copies you have specified.

HP strongly recommends that you also install Insight Remote Support as described in "HP Insight Remote Support software" (page 58).

Using Microsoft Exchange Jetstress and Load Generator (optional)

You can use Microsoft Exchange Jetstress and Load Generator (LoadGen) to generate a simulated Exchange workload on your system and analyze the effect of that workload on the messaging system.

CAUTION: You must run these tools in a nonproduction environment to avoid potential loss of data and performance degradation.

For more information about these tools, see *Tools for Performance and Scalability Evaluation* at http://technet.microsoft.com/en-us/library/dd335108.aspx. If you are testing Jetstress, only the E5000 servers are required. The servers must not have Exchange loaded when running Jetstress.

When running LoadGen, Exchange Server 2010 SP1 is installed on both servers in the E5000 enclosure, and the Client Access Server, Hub Transport Server, and Mailbox Server roles are installed. Because multiple roles are installed on both servers, and because of the participation of

each server in the DAG, you must use an external load balancing method. Two possible methods are:

- Use a hardware load balancer.
- Use the Exchange database configuration to balance the load across the CAS servers manually.
    - MAPI Traffic: Assuming the users are evenly split between databases, use the Set-MailboxDatabase cmdlet available from Microsoft at http://technet.microsoft.com/en-us/library/bb123971.aspx and specify the `rpcclientaccessserver` parameter equal to `cas1` for half of the databases and `cas2` for the other half.
    - OWA Traffic: OWA requires persistence, so direct all OWA traffic through the first CAS.
    - Exchange Sync (EAS): Direct all OWA traffic through the second CAS.
    - Other protocols (POP3, IMAP, and so forth): Use DNS round-robin to get rudimentary load balancing.

5 Monitoring and troubleshooting the messaging system

The messaging system provides several monitoring and troubleshooting options. You can access the following troubleshooting alerts and solutions to maintain the system health:

- Notification alerts
- System Management Homepage (SMH)
- System Manager
- Hardware component LEDs
- EMU CLI `SHOW` commands
- HP and Microsoft support websites
- HP Insight Remote Support software
- Microsoft Systems Center Operations Manager (SCOM) and Microsoft websites
- HP SIM 6.3 or later is required for proper messaging system/HP SIM integration.

  NOTE: Integration with HP SIM is only supported using the WBEM/WMI interfaces. Do not attempt to configure HP SIM to use the ProLiant SNMP agents, because the configuration is untested and unsupported. The ProLiant SNMP agents are enabled on the messaging system by default and should not be disabled as they are used for internal management functions. If they are enabled for external client consumption, HP SIM must be configured so it does not attempt to communicate with these agents.

NOTE: WBEM events for storage are logged into Windows Application logs and WBEM events for Server and Enclosure are logged into Windows System logs.

If you are unable to resolve a messaging system operation issue after using the various options, contact HP Support. You must provide your SAID and your warranty and entitlement labels. See "Obtaining the Service Agreement ID" (page 60) and "Locating the messaging system warranty entitlement label" (page 60).

Using notification alerts

When you receive an alert, open the System Manager (described in "Using the System Manager" (page 42)) to view a high-level description of the issue. You may then choose to open the System Management Homepage or HP SIM to obtain more detailed information.

IMPORTANT: While the notification alerts report issues as they arise, it is still important to monitor the messaging system regularly to ensure optimal operation.

See "Troubleshooting" (page 176) and "E5000 Error Codes" (page 164) for troubleshooting information.

Configuring Alerts and Email

Configure Alerts and Email in the System Manager to send email notification of system events.

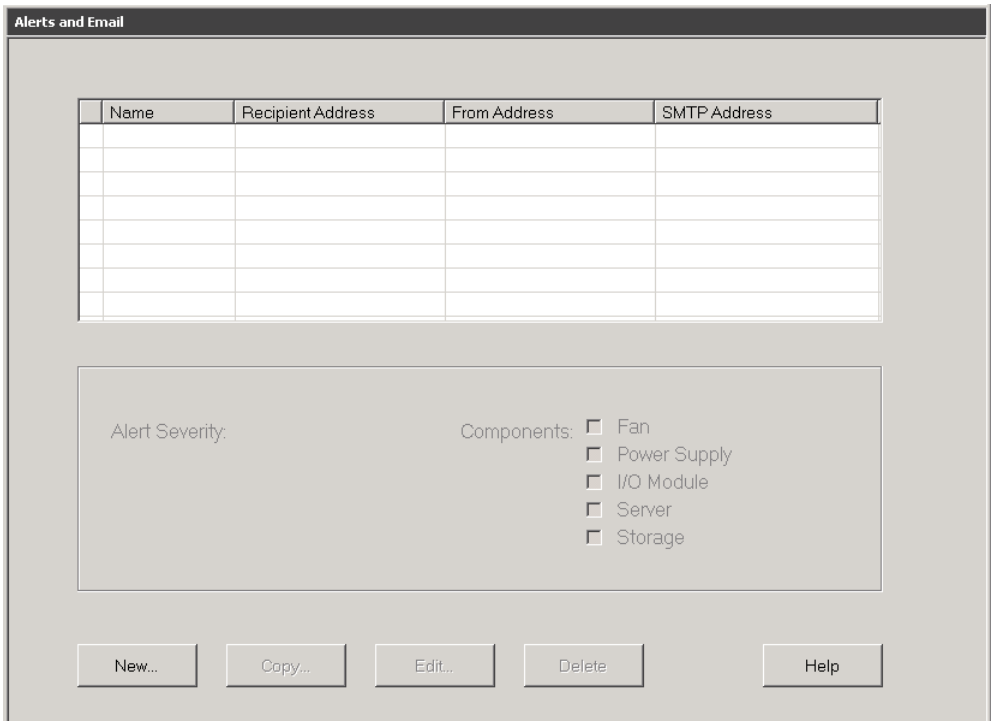
IMPORTANT: HP recommends that you configure Alerts and Email (and also install HP Insight Remote Support) to ensure that you are proactively alerted to issues. Proactive notification enables you to address issues before they become serious problems.

To create an alert for a recipient:

1. Open the Server Manager by clicking the icon located to the right of the Start button on the Windows taskbar.

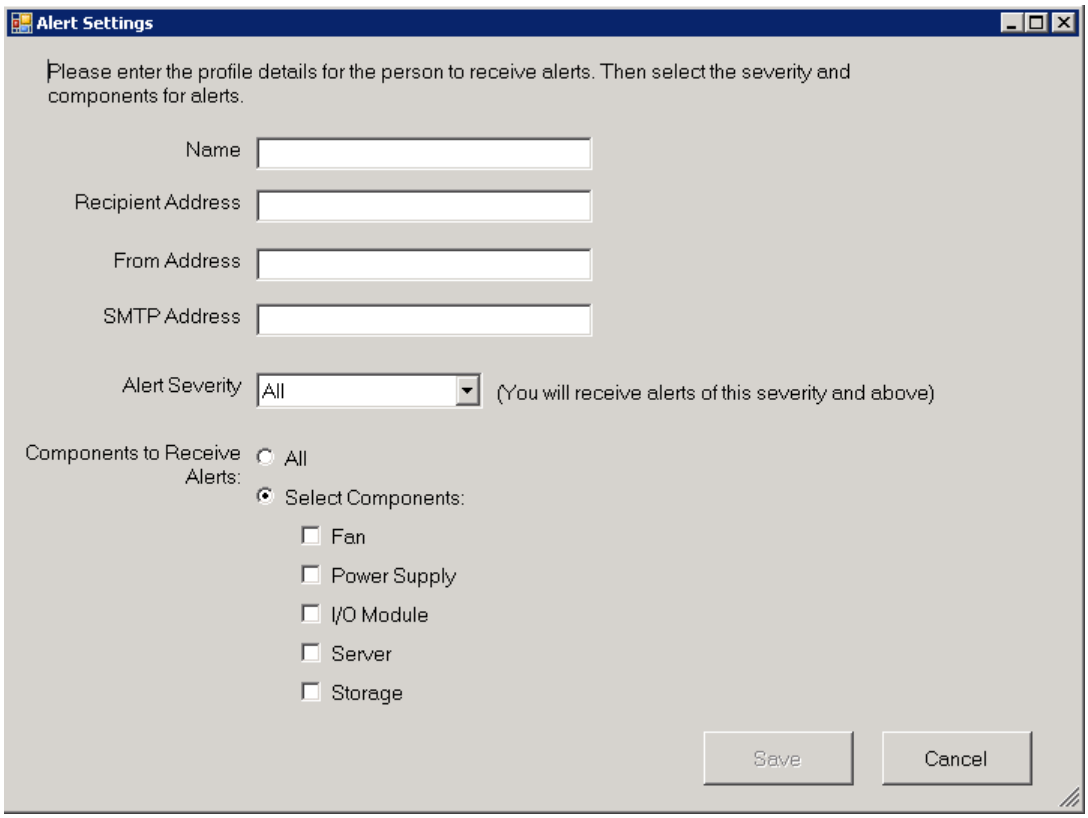
2. Expand the tree under System Manager.
3. In the tree, select **Alerts and Email**.

Figure 21 Configuring Alerts and Email



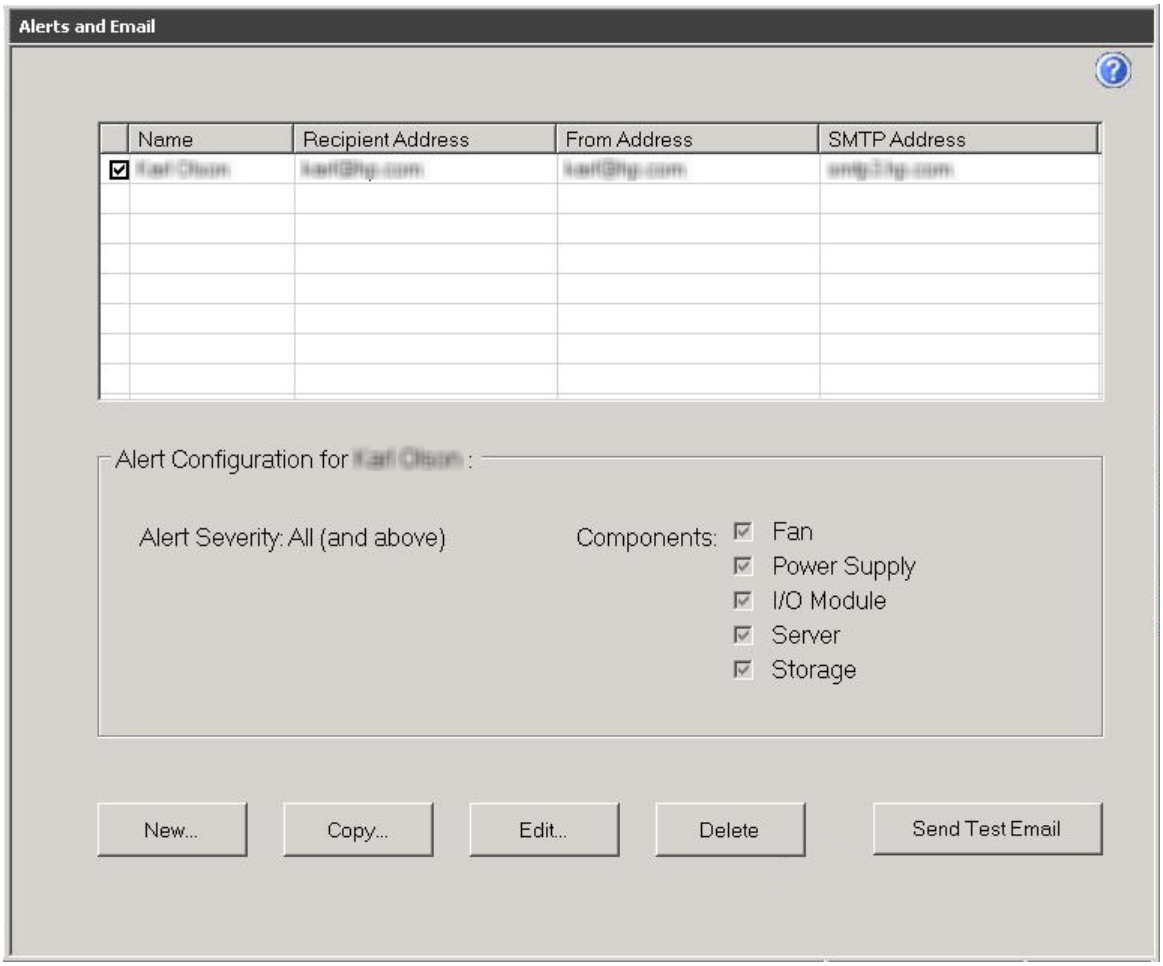
4. Do one of the following:
   - Select **New** to create a profile.
   - Select **Copy** or **Edit** to modify an existing profile.
     The Alert Settings window appears.

Figure 22 Alert and Email settings



5. Complete the following fields:
   - Name—Enter the name of a recipient (for example, John Doe).
   - Recipient address—Enter the email address of the recipient (for example, `John.Doe@company.com`).
   - From address—Enter an email address that will display to the recipient indicating where the message originated. It can be the same as the recipient address, if desired.
   - SMTP address—Enter a valid SMTP address (for example, `SMTP.company.com`).
   - Alerts Severity—Select the severity for which you want to receive alerts. You will also receive alerts for any severity higher than the one you select. Select **All** to receive alerts for all severities.
   - Components Alerts—Select the components for which you want to receive alerts, or select **All** to receive alerts for all components.
6. To test the ability for the recipient to receive email alerts, click **Send Test Email**. If the recipient receives the test email, no further action is required. If the test email is not received, check that the information entered for the recipient is correct.

Figure 23 Send test email



7. Click **Save**. The name of the recipient is displayed on the main Alerts and Email window.

To configure the SNMP settings:

1. In the Server Manager navigation pane, select **System and Network Settings**.
2. Select **SNMP Settings** in the lower-right pane.
3. Provide the contact and location information for the System Administrator, and then click **OK**.
4. To make SNMP visible externally:
   a. Select **Start→Administrative Tools→Services**.
   b. Select **SNMP Service**.
   c. Right-click and select **Properties** to display the SNMP Service properties.
   d. Select the **Security** tab and specify the following items:
      - The external hosts that may use the SNMP protocol.
      - The SNMP Community string. HP recommends that you use something other than the typical 'Public' string.

IMPORTANT: Configure HP SIM security to prevent the SIM management server from gaining access to SNMP.

The SNMP trap function in the messaging system is enabled by default. Any SNMP client (on `localhost`) listening on default port number 171 can receive traps. You can configure the destination IP address using the `snmp.xml` configuration file in the directory `\Program Files\HPWBEM\Tools\snmp.xml`.

HP System Management Homepage

The HP System Management Homepage (SMH) is a web-based interface that consolidates and simplifies single system management for HP servers. The SMH is the primary tool for identifying and troubleshooting hardware issues in the messaging system. You may choose this option to diagnose a suspected hardware problem. Go to the **SMH main page** and open the **Overall System Health Status** and the **Component Status Summary** sections to review the status of the messaging system hardware.

By aggregating the data from HP web-based agents and management utilities, the SMH provides a common, easy-to-use interface for displaying the following information:

- Hardware fault and status monitoring
- System thresholds
- Diagnostics
- Software and firmware version control for an individual server
- HP Storage 1210m firmware information

The SMH Help menu provides documentation for using, maintaining, and troubleshooting the application. For more information about the SMH software, go to www.hp.com/support/manuals and enter **System Management Homepage** in the Search box. Select **HP System Management Homepage Software**. A list of documents and advisories is displayed. To view SMH user guides, select **User Guide**.

Starting the System Management Homepage application

To start the application, double-click the **HP System Management Homepage** desktop shortcut or enter `https://hostname:2381/` in Internet Explorer. The *hostname* can be `localhost` or the IP address of the server you want to monitor. To log into SMH, enter the same username and password you use to log in to the server. Users who have administrative privileges on the server have the same privileges in the SMH application.

IMPORTANT: You must complete the E5000 Configuration Wizard before using the SMH. During the initial stages of the installation, the Administrator user password is not set. You cannot use the SMH to manage the messaging system until you log in.

To view the SMH of one server from another server, you must modify the Windows firewall settings as follows:

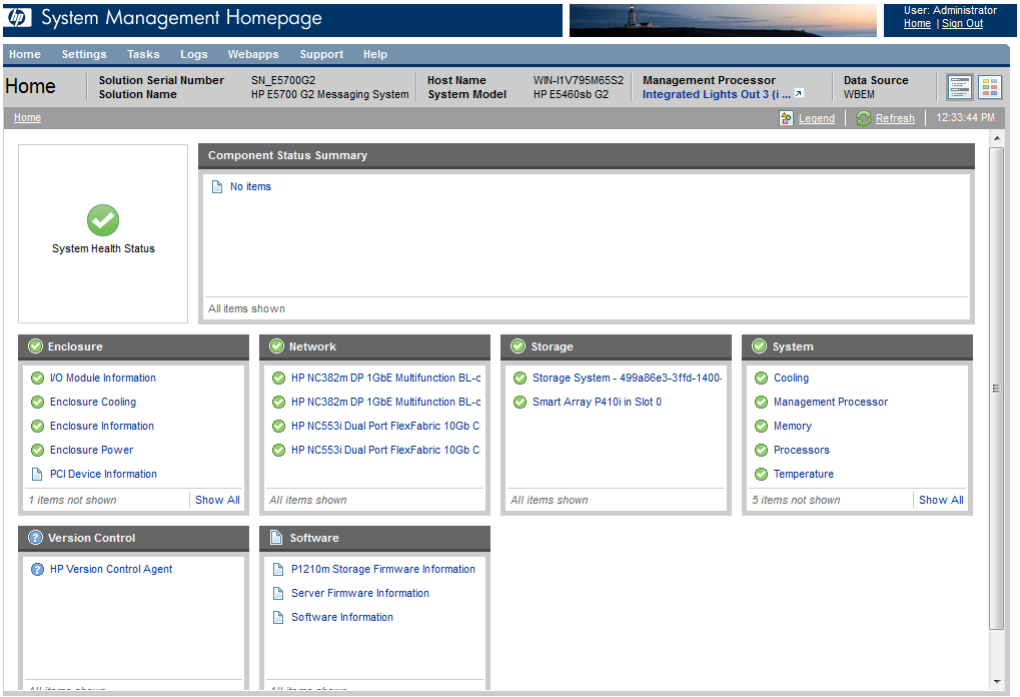
1. Open the Control Panel and select **System Security→Windows Firewall→Allowed Programs**.
2. Select **Allow another program** and click **Browse** in the Add a Program dialog box.
3. Navigate to `C:\hp\hpsmh\bin` and select **hpsmhd**. Click **Open** and then click **Add**. HP System Management Homepage displays in the Allowed Programs and Features window.
4. Select **Home/work (Private)** and **Public** and click **OK**.
5. To access the SMH on another server, enter the following URL:

   https://<server IP address>:2381

System Management Homepage main page

Figure 24 (page 39) shows the SMH main page.

Figure 24 System Management Homepage main page



The page provides system, subsystem, and status views of the server and displays groupings of systems and their status.

NOTE:

- NICs will display with a failed status (red icon) if they are unplugged. To remove unused NICs from the system status, you can disable them by selecting **Control Panel→Hardware→Device Manager**, right-click on the specific NIC, and then select **Disable**.
- When you remove a disk or disconnect a cable, the SMH interface might not display alerts when you click the **Refresh** button. You can force a hard refresh by clicking the **Home** button or by navigating to the problem area. The default refresh interval is two minutes. To change the interval in the **Settings** menu, select **Autorefresh**, and then **Configure Page refresh settings**. The minimum interval is five seconds and the maximum is 30 minutes.

Overall System Health Status

A webapp sets the value of the **Overall System Health Status** icon by using a predefined heuristic. If no webapp can determine the status, the worst possible status is displayed in the **Component Status Summary** section.

Component Status summary

The **Component Status Summary** section displays links to all subsystems that have a critical, major, minor, or warning status. If there are no critical, major, minor or warning items, the **Component Status Summary** section displays no items.

Enclosure

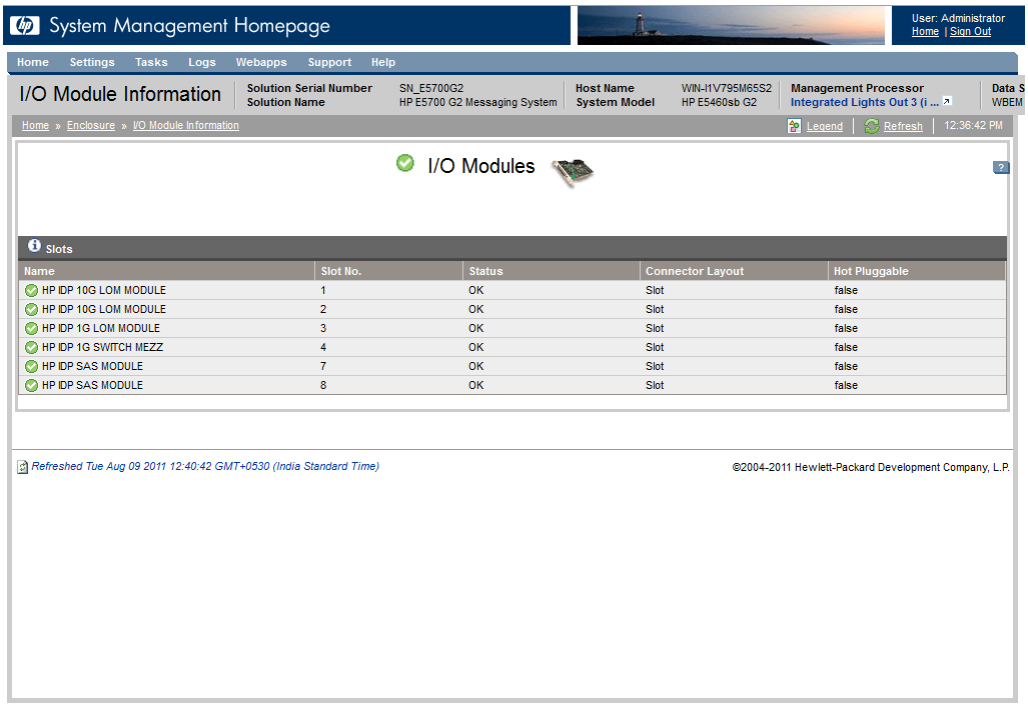
This section provides information about the enclosure cooling, IDs, power, Unit Identification LED, PCIe devices, and I/O modules.

NOTE: A large number of disk errors may indicate that an I/O module has failed. Inspect the I/O module LEDs on the messaging system and any expansion disk enclosures, and replace any failed component.

- Because both a system and drive fan are required, the maximum and minimum number of fans required is two. If either fan becomes degraded, the system could shut down quickly. Because the fans are not mutually redundant, even if the status of a single fan has changed, the new status is reported immediately in the **Components Status Summary** section on the SMH main page.
- When the Enclosure Manager IP address is set incorrectly, the enclosure status displayed is Lost communication. Because the Enclosure Manager has lost communication with the external network, none of the other items in the Enclosure Information section can be displayed.

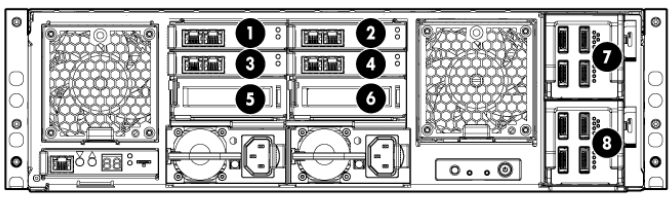
The enclosure I/O ports are numbered from 1 to 8 in the SMH.

Figure 25 I/O module


System Management Homepage
User: Administrator
Home | Sign Out
Home Settings Tasks Logs Webapps Support Help
I/O Module Information
Solution Serial Number SN_E5700G2
Solution Name HP E5700 G2 Messaging System
Host Name WIN-I1V795M65S2
System Model HP E5460sb G2
Management Processor
Integrated Lights Out 3 (i ...
Home » Enclosure » I/O Module Information
Legend Refresh 12:36:42 PM
I/O Modules
Slots
Name | Slot No. | Status | Connector Layout | Hot Pluggable
HP IDP 10G LOM MODULE | 1 | OK | Slot | false
HP IDP 10G LOM MODULE | 2 | OK | Slot | false
HP IDP 1G LOM MODULE | 3 | OK | Slot | false
HP IDP 1G SWITCH MEZZ | 4 | OK | Slot | false
HP IDP SAS MODULE | 7 | OK | Slot | false
HP IDP SAS MODULE | 8 | OK | Slot | false
Refreshed Tue Aug 09 2011 12:40:42 GMT+0530 (India Standard Time)
©2004-2011 Hewlett-Packard Development Company, L.P.

These numbers correspond to the I/O modules in the enclosure bays.

Figure 26 I/O module bays



1. LOM module
2. LOM module
3. MEZZ module
4. MEZZ module
5. PCIe module
6. PCIe module
7. SAS I/O module
8. SAS I/O module

Network

This section shows the status of the network connections.

Storage

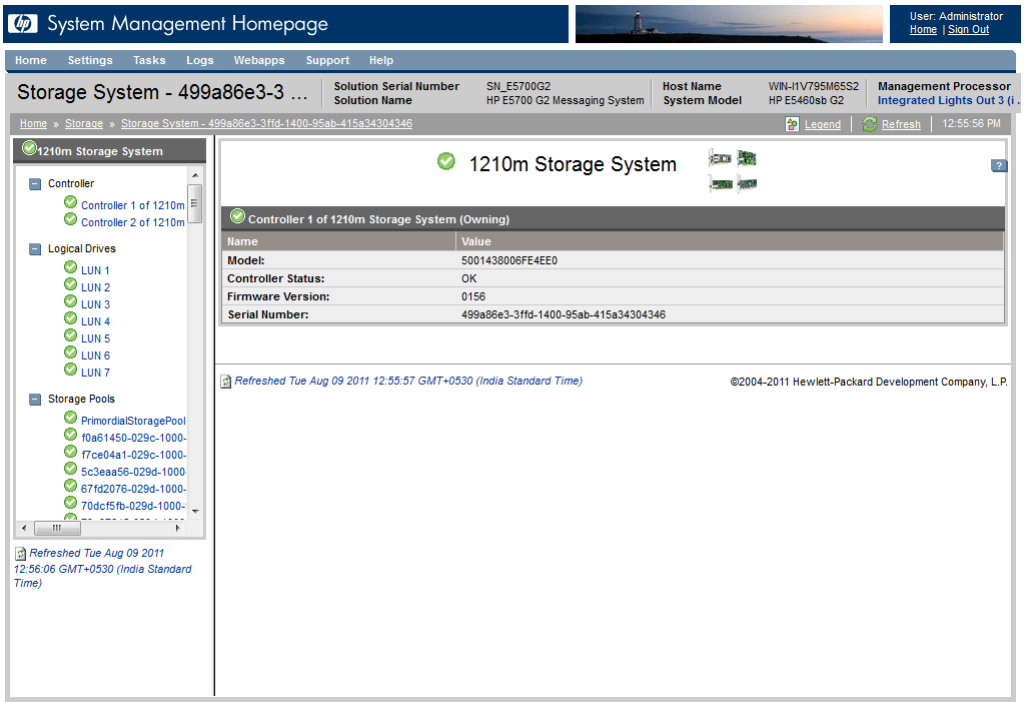
This section displays information about the following components:

- **Storage System**—Links to the page that displays information about storage in the drive drawer and any external disk enclosures. This storage is managed by the 1210m controller.
- **Smart array subsystem**—Links to the page that displays information about operating system drives and smart array controllers.

NOTE: The SMH will display a total of four power supplies for each External Storage Enclosure. If there is more than one External Storage Enclosure connected, the SMH may not show the correct number of power supplies for each of these enclosures.

The **Storage System** page is organized as a left panel and a main page:

Figure 27 Storage system



The left panel provides links to information about the following items:

- **Controller**

  Select a storage controller to view its type, status, firmware version, and serial number.

- **Logical Volumes**

  A list of logical volumes associated with the controller appears in the left panel tree view. Select one of the logical volume entries to display the status of the volume, fault tolerance (RAID level), and capacity (volume size). A link to the logical volume storage pool is also displayed.

- **Storage Pools**

  A list of storage pools associated with the controller displays in the left panel tree view. Select one of the pool entries to display its status, capacity, communication status with the controller, primordial state, and cache properties.

NOTE: If read or write cache is enabled the value displayed is 2; otherwise, the value is 3.

The **Storage Pools** page also displays a list of disk drives and storage volumes present in the pool.

Under the Physical Drives tree, the list of expansion disk enclosures is displayed. Under each enclosure, the list of disk drives present in each expansion disk enclosures is displayed. When there is no drive in the enclosure, the display shows Bay *Bay number* – Empty. Select one of the expansion disk enclosures or disk drives to see information for that enclosure or drive.

- **Physical Drives**

  This section provides an overview of all disk drives attached to the controller. Drives are identified and grouped as assigned, unassigned, and spare drives. Each physical drive is listed as a separate entry in the Storage System submenu. Select any of the physical drives to display more information about the drive.

NOTE: Spare drives are only used when a disk drive fails. Until a spare drive is used, it remains offline and its LEDs will remain off.

System

This section displays status for various system components.

Version Control

This section provides information about the Version Control Agent.

Software

This section provides information about system firmware and software.

Using the System Manager

The System Manager provides the status of each server blade that is configured in the messaging system. Be sure to note the server blade that is being assessed when you open the System Manager. Log in to each server blade to evaluate its status.

To use the System Manager, which has been preinstalled and configured, use Remote Desktop or iLO to access the server blade. Click the Server Manager icon located in the taskbar to the right of the Start button or select **Start→Administrative Tools→Server Manager**. When Server Manager appears, select System Manger in the left navigation pane.

To troubleshoot using the System Manager:

1. Open the System Manager.
2. Open the System Summary tab to review the overall health of the messaging system hardware, Exchange, and firmware.

   If the status icon is green, the system is running properly. A yellow icon is a warning that there are conditions that might cause a problem. If the icon is red, a problem exists in the messaging system.
3. Open each tab in the System Manager to assess the status of the messaging system.
4. Follow the instructions provided on the System Manager tabs for any reported issue.

IMPORTANT: The System Manager identifies the server blade and bay location. You must run the System Manager beginning with server blade 1, although server blade 1 might not be the active server blade. A message appears informing you that the System Manager is evaluating server blade 1.

Table 1 (page 43) shows the description for the messaging system status tray check mark color.

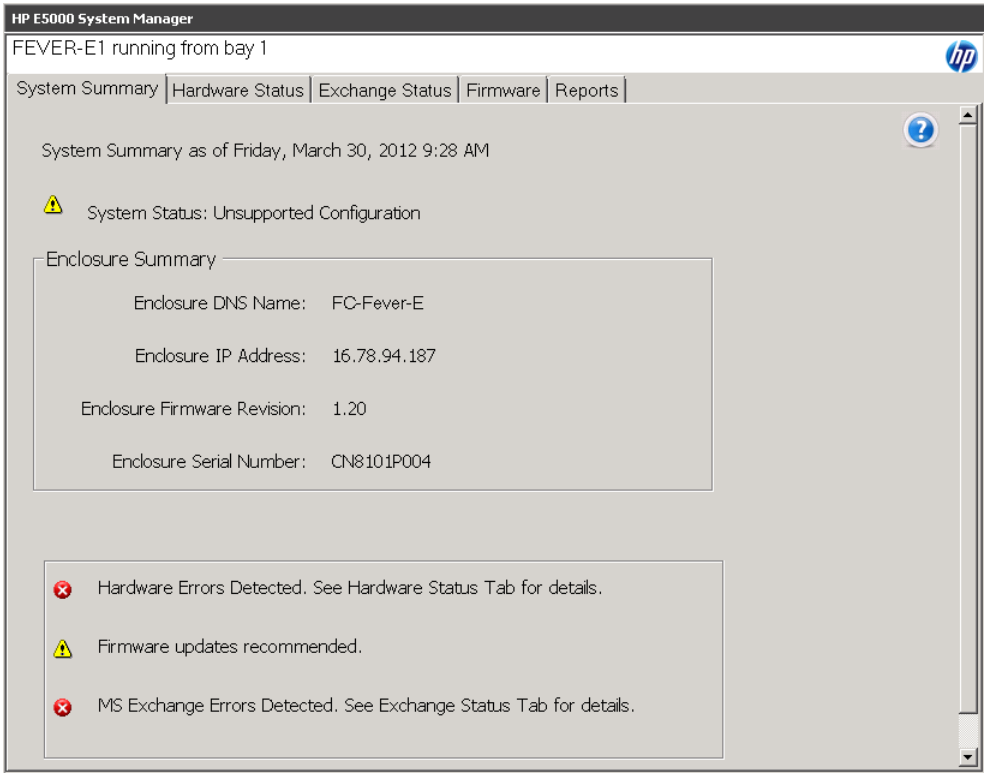
Table 1 System status tray description

Icon check mark color	Description
Green	The system is running a *supported* configuration.
Red	The system is running an *unsupported* configuration. The system tray icon shows a red error symbol until Microsoft Exchange has been fully installed, or if the system is running outside the terms of the service and support agreement (for example, the system is running a server application other than Microsoft Exchange).

System Summary

The System Summary tab displays information such as the enclosure name, IP Address, firmware revision, and serial number. The lower part of the System Summary also shows the status of hardware and Microsoft Exchange, and whether your current firmware revision is up to date. If a green check mark does not appear beside the configuration status, go to the related tab for information about the issue.

Figure 28 System summary

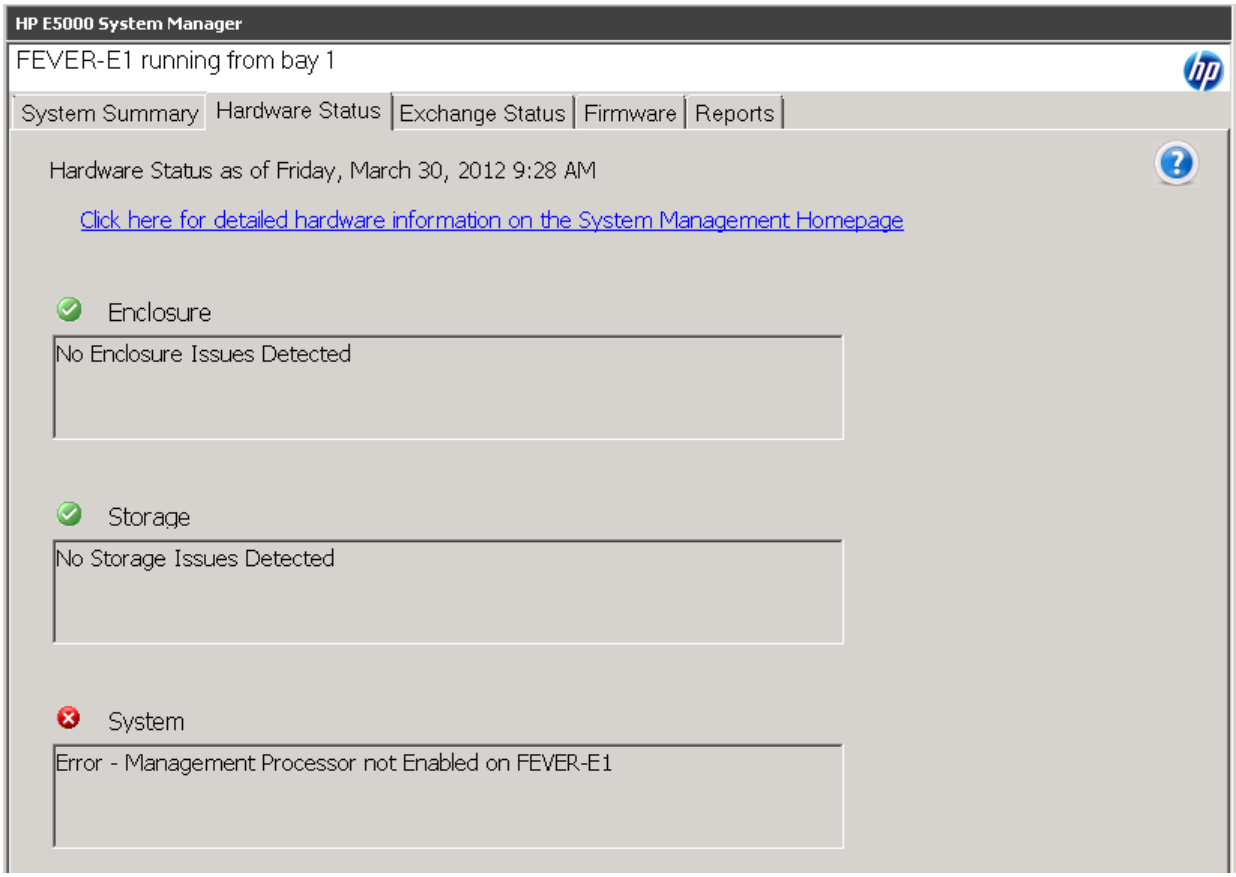

HP E5000 System Manager
FEVER-E1 running from bay 1
System Summary
Hardware Status
Exchange Status
Firmware
Reports
System Summary as of Friday, March 30, 2012 9:28 AM
System Status: Unsupported Configuration
Enclosure Summary
Enclosure DNS Name: FC-Fever-E
Enclosure IP Address: 16.78.94.187
Enclosure Firmware Revision: 1.20
Enclosure Serial Number: CN8101P004
Hardware Errors Detected. See Hardware Status Tab for details.
Firmware updates recommended.
MS Exchange Errors Detected. See Exchange Status Tab for details.

Hardware Status

The Hardware Status tab provides the health status for each of the messaging system components. The System section displays information for the server blade that you are logged in to. If a problem is reported in the System section, you should check the Hardware Status tab on each server blade.

NOTE: If the System Manager shows that a LUN has an error, open the System Management Homepage and determine whether the LUN is degraded due to a disk failure. If so, also use the System Management Homepage to determine which disk needs to be replaced.

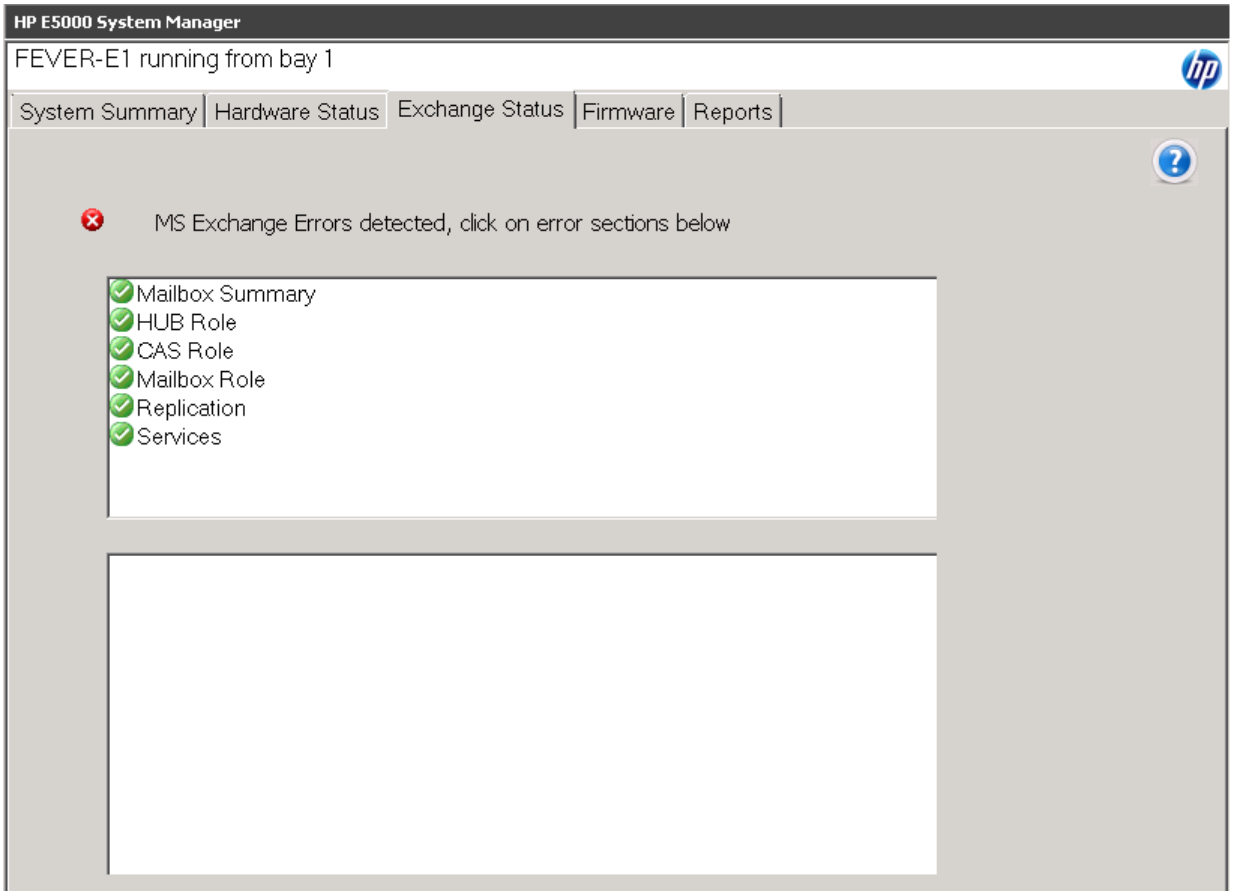
Figure 29 Hardware status



Exchange Status

The Exchange Status tab provides the overall Microsoft Exchange configuration status (by default). Select any configuration item in the list at the top to see further refined detail.

Figure 30 Exchange status

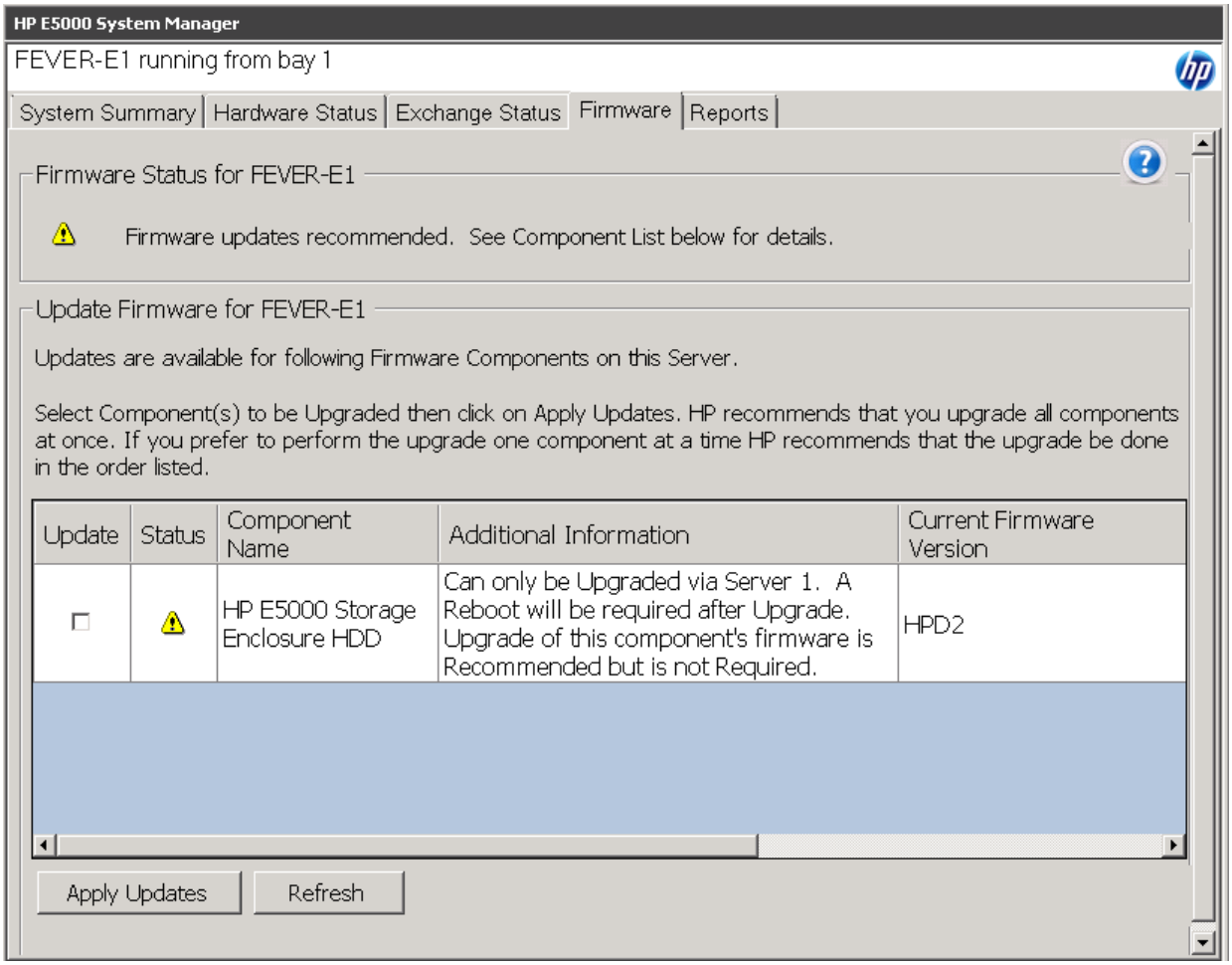


Firmware

The Firmware tab indicates whether the firmware of a component is outdated. If the specific firmware requires that you reboot after installing the update, a message instructing you to reboot the messaging system appears. Since the tool does not connect to the Internet to identify new firmware, you must periodically check the HP support web page and download new firmware when available. Be sure to check the Firmware tab on each server blade. Some firmware updates must be made on both server blades.

IMPORTANT: If a firmware update requires a reboot, you must reboot your messaging system manually. For more information about firmware updates, see"Upgrading a component's firmware" (page 62).

Figure 31 Firmware


HP E5000 System Manager
FEVER-E1 running from bay 1
System Summary
Hardware Status
Exchange Status
Firmware
Reports
Firmware Status for FEVER-E1
Firmware updates recommended. See Component List below for details.
Update Firmware for FEVER-E1
Updates are available for following Firmware Components on this Server.
Select Component(s) to be Upgraded then click on Apply Updates. HP recommends that you upgrade all components at once. If you prefer to perform the upgrade one component at a time HP recommends that the upgrade be done in the order listed.
Update
Status
Component Name
Additional Information
Current Firmware Version
HP E5000 Storage Enclosure HDD
Can only be Upgraded via Server 1. A Reboot will be required after Upgrade. Upgrade of this component's firmware is Recommended but is not Required.
HPD2
Apply Updates
Refresh

Reports

The Reports tab gathers logs for the hardware, software, Microsoft Windows system configuration, and the Microsoft Exchange diagnostics in one place. These logs are used by HP support engineers to help diagnose your system, if needed; you do not need to view and interpret the logs yourself.

To generate reports:

1. Consult with HP support to determine what type of report is required.

   - If complete reports are required, go to step 2.

   - If an abbreviated report can be used, select the **Run Quick Report Only** option. A quick report contains less information but is created in much less time. It may contain all the necessary information HP support needs.

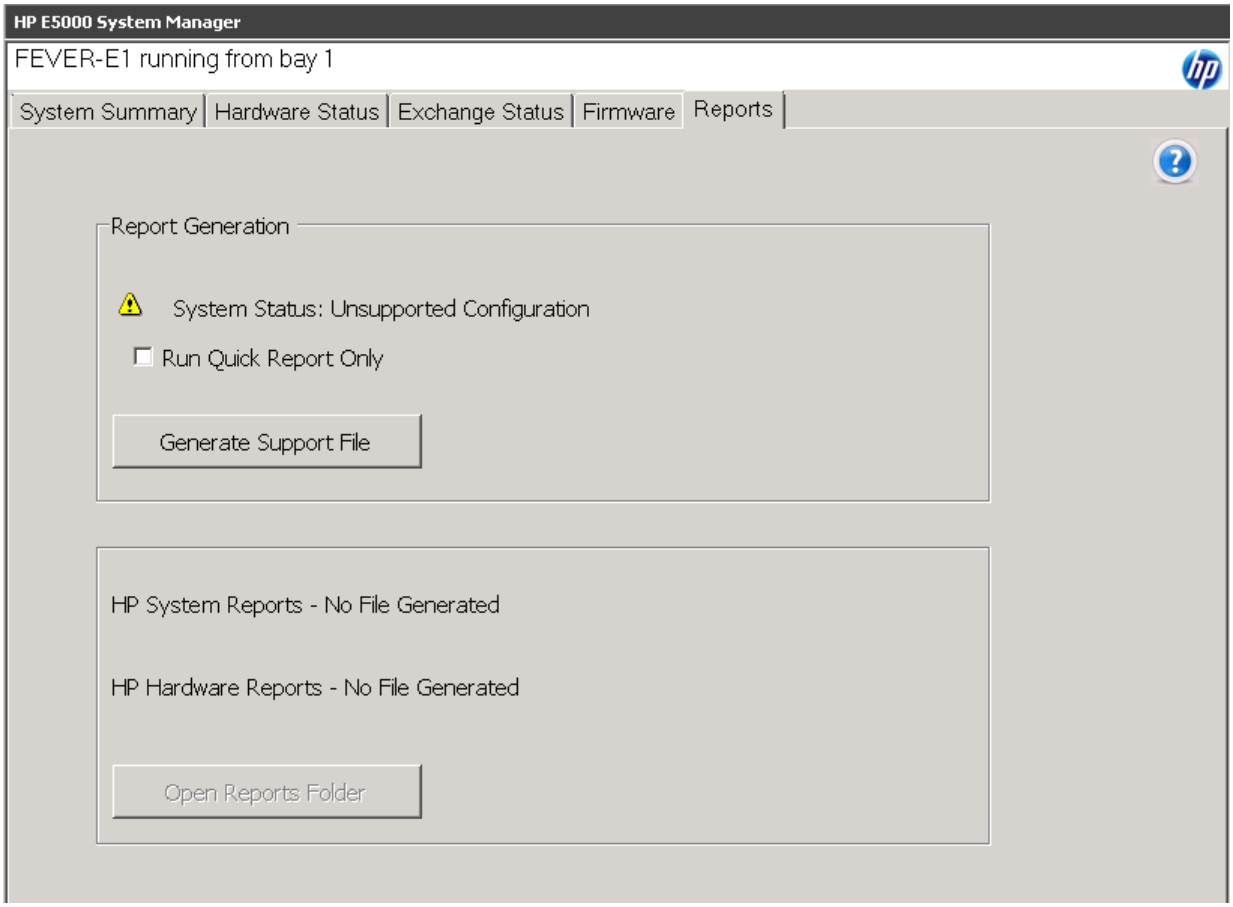
2. Click **Generate Support File**. A license agreement window is displayed.
3. Select **Yes** to accept the license.

   The report generation process begins. It may take up to 45 minutes to create the reports. When the process is complete, the lower portion of the screen indicates that HP System Reports have been generated.

4. Click **Open Reports Folder** to access the `.cab` file containing the report results.

   This file is ready to forward to the HP support engineers.

Figure 32 Reports



Component LEDs

LEDs indicate the status of hardware components. This section provides images of the component LED locations and describes the status of LED behaviors. To obtain additional information on some status indicators, you can use the EMU CLI `SHOW` commands described in "Managing the EMU" (page 134).

Figure 33 Server blade LEDs

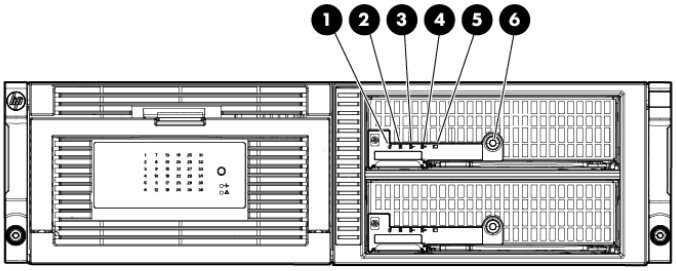


Table 2 Server blade LEDs status

Item	Description	Status
1	UID LED	Blue = Needs service check Blue flashing = remote management (remote console in use via iLO)

Table 2 Server blade LEDs status *(continued)*

Item	Description	Status
		OFF = No remote management
2	Health LED	Green = Normal Flashing = Booting Amber = Degraded condition Red = Critical condition
3	NIC 1 LED*	Green = Network linked Green flashing = Network activity OFF = No link or activity
4	Flex-10 NIC 2 LED*	Green = Network linked Green flashing = Network activity OFF = No link or activity
5	Reserved	—
6	System power LED	Green = On Amber = Standby (auxiliary power available) OFF = OFF
*Actual NIC numbers depend on several factors, including the operating system installed on the server blade.		

Figure 34 Front LED display board

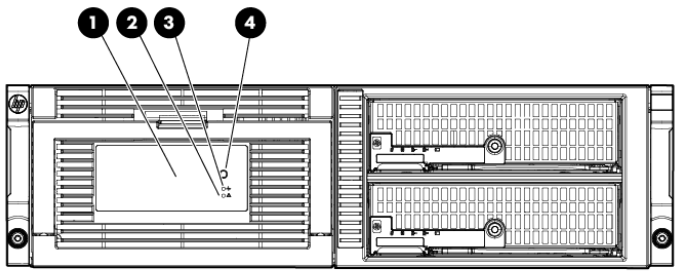


Table 3 Front LED status

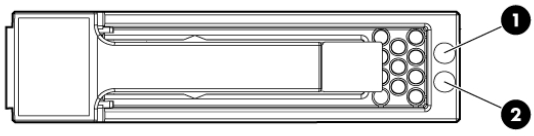
Item	Description	Status
1	Hard drive LEDs Normal mode (UID LED is solid)	Green = The drive is online, but is not currently active. Flashing irregularly green = The drive is online and it is operating normally. Flashing green (1 Hz) = Do not remove the drive. Removing the drive may terminate the current operation and cause data loss. The drive is rebuilding, or it is part of an array that is undergoing expansion, logical drive extension, a stripe size migration, or RAID migration. Flashing amber/green = Drive is configured and indicating a predictive failure. The drive may also be undergoing a rebuild, expansion, extension, or migration.

Table 3 Front LED status *(continued)*

Item	Description	Status
		Flashing amber (1 Hz) = A predictive failure alert has been received for this drive. Replace the drive as soon as possible. Amber = Drive failure, link failure, or mismatched configuration. OFF = The drive is offline, a spare, or not configured as part of an array.
1	Hard drive LEDs Drive locate mode (UID LED is flashing)	Green = The drive has been selected by a management application and it is operating normally. Flashing amber (1 Hz) = The drive is not selected and is indicating a predictive failure. Flashing amber/green = The drive has been selected by a management application and is indicating a predictive failure. Amber = The drive might or might not be selected and is indicating drive failure, link failure, or mismatched configuration. OFF = The drive is not selected.
2	Chassis fault LED	Flashing amber if there is a failed component in the system. **NOTE:** The amber chassis fault LED flashes if any component fault is detected by the System Management Homepage. A fault can be as minor as a cable unplugged from a NIC port, and therefore may not be cause for concern. OFF if the system is in good health.
3	Chassis health LED	Solid green if the system is in good health. OFF if there is a failed component in the system.
4	Chassis UID LED	This is either blue or off. When on it can be steady or blinking. Used only for unit identification. To set the LED, use the following CLI command: `SET ENCLOSURE UID { ON | OFF | SLOW | FAST }` OFF = Enclosure is functioning normally.

NOTE: All these LEDs are off if the enclosure has power but is turned off (see Table 10 (page 53)). Then only the equivalent Chassis LEDs (2,3,4) on the rear Power Pod show status.

Figure 35 Hard drive LEDs



1. Fault/UID LED (amber/blue)
2. Online LED (green)

Table 4 SAS hard drive LED combinations

Item	Description	Status
1	Activity/Online LED	OFF = Override drive activity output. Drive is not a member of any RAID volumes <or> Drive is configured but in a replacement or failed state for at least one volume that is a member of a RAID volume <or> Drive is a spare drive that is or has been activated but has not been

Table 4 SAS hard drive LED combinations *(continued)*

Item	Description	Status
		rebuilt.<and>Drive is not rebuilding<and>Drive is not a member of a volume undergoing capacity expansion or RAID migration. Solid green = Drive is a member of a RAID volume <and> Drive is not a spare drive <and> Drive is not in a replacement or failed state for any volume that is a member of a RAID volume <and> Drive is not currently performing I/O activity.
		Blinking green (@ 4 Hz 50% of duty cycle) = Drive is currently performing I/O activity <and> Drive is a member of a RAID volume <and> Drive is not in a replacement or failed state for any volumes that is a member of a RAID volume (drive is online) <and> Drive is not rebuilding <and> Drive is not a member of a volume undergoing capacity expansion or RAID migration.
		Blinking green (@1 Hz 50% duty cycle — override drive activity output) = Drive rebuilding <or> member of volume undergoing Capacity Expansion/RAID Migration.
2	Fault/Identification LED – Bicolor amber/blue	OFF = Drive is not failed <and> Drive is not selected (unit identification).
		Solid blue = Drive is not failed <and> Drive is selected (unit identification).
		Solid amber = Drive is failed <and> Drive is not selected.
		Blinking amber (@ 1Hz 50% duty cycle) = Drive is in a predictive failure state <and> Drive is not failed <and> Drive is not selected.
		Blinking alternate amber/blue (@ 1Hz 50% duty cycle) = Drive Failed <or> Drive is in a predictive failure state<and>Drive is selected.

NOTE: Spare drives are only used when a disk drive fails. Until a spare drive is used, it remains offline and its LEDs will remain off.

Figure 36 1210m Cache module controller LEDs

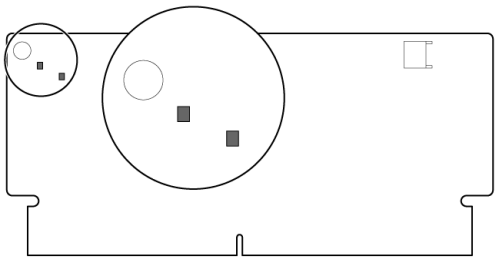


Table 5 1210m Cache module controller LED status

Item	Description	Status
Green LED upper left; Amber LED lower right	Controller LEDs	Green off, amber on = A backup is in progress.
		Green flashing (1 Hz), amber on = A restore is in progress.
		Green flashing (1 Hz), amber off = The capacitor pack is charging.
		Green on, amber off = The capacitor pack has completed charging.

Table 5 1210m Cache module controller LED status *(continued)*

Item	Description	Status
		Green flashing (2 Hz) alternating with amber; amber flashing (2 Hz) alternating with green LED = One of the following condition exists: – The charging process has timed out. – The capacitor pack is not connected. Green on, amber on = The flash code image failed to load.
		Green off, amber off = The flash code is corrupt.

Figure 37 Enclosure Manager unit LEDs

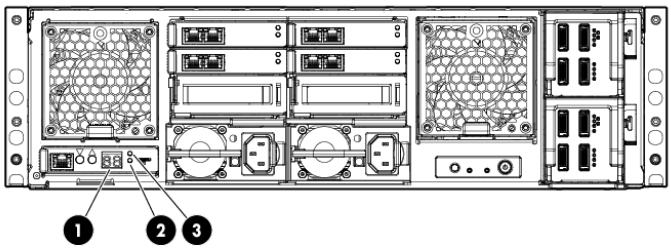


Table 6 Enclosure manager unit LEDs status

Item	Description	Status
1	EM display	The LED blinks during power-up, but then the display changes only in response to commands from the Enclosure Manager Display.
2	EM fault LED	Amber flashing/green LED off = issue. Use the CLI commands `SHOW ENCLOSURE STATUS` and `SHOW SYSLOG EM` to determine possible fault causes.
3	EM health LED	The health LED is only green and is either on (Healthy) or off (Power off or Faulted).
LEDs are off when the enclosure is powered off.		

Figure 38 HP 2-port 1 GB Ethernet I/O modules LEDs

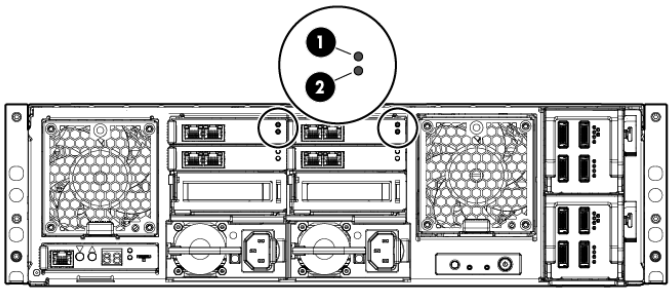


Table 7 HP 2-port 1 GB Ethernet I/O modules LEDs status

Item	Description	Status
1	Module health LED	Solid green when module health is good OFF* when module has failed
2	Module fault LED	Solid amber when module has failed OFF* when module health is good
*LEDs are off when enclosure is powered off.		

Figure 39 HP 2-port 1 GB Ethernet, Mezz A and B I/O modules LEDs

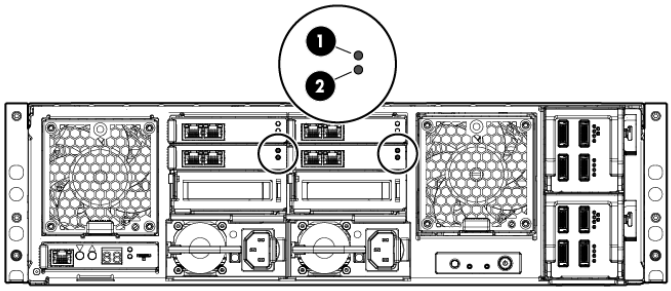


Table 8 HP 2-port 1 GB Ethernet, Mezz A and B I/O modules LEDs status

Item	Description	Status
1	Module health LED	Solid green when module health is good OFF* when module has failed
2	Module fault LED	Solid amber when module has failed OFF* when module health is good
*LEDs are off when enclosure is powered off.		

Figure 40 Power supply LEDs

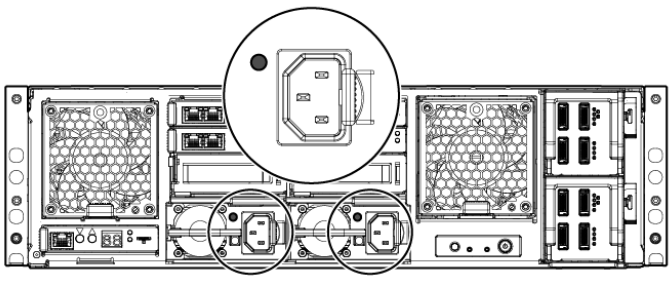


Table 9 Power supply LED status

Item	Description	Status
1	Power supply	Green = Power on and power supply functioning properly. OFF = One or more of the following conditions exists: System powered off, AC power unavailable, Power supply failed, Power supply exceeded current limit. Use the CLI command `SHOW ENCLOSURE POWERSUPLY STATUS ALL` for more details.

Figure 41 Chassis switches and indicator LEDs

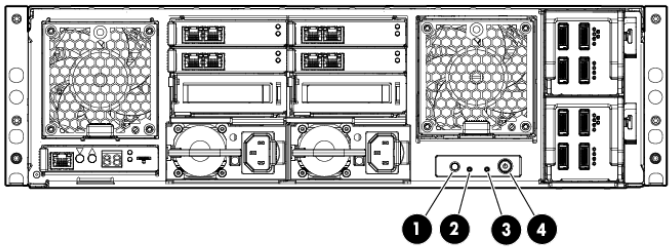


Table 10 Chassis switches and indicator LEDs status

Item	Description	Status
1	UID	Solid blue = Requires service check.
2	Chassis health	Solid green when system health is good. OFF if a module or component in the system has failed
3	Chassis fault	Flashing amber if a module or component in the system has failed. **NOTE:** The amber chassis fault LED flashes if any component fault is detected by the System Management Homepage. A fault can be as minor as a cable unplugged from a NIC port, and therefore may not be cause for concern. OFF if system health is good.
4	Power button/LED	Green when enclosure power is ON. Amber when enclosure has AC power but is turned off.

Figure 42 SAS I/O modules LEDs

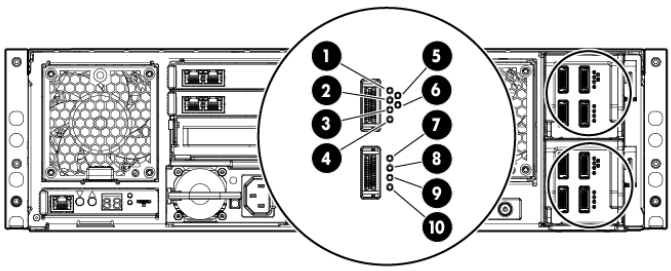
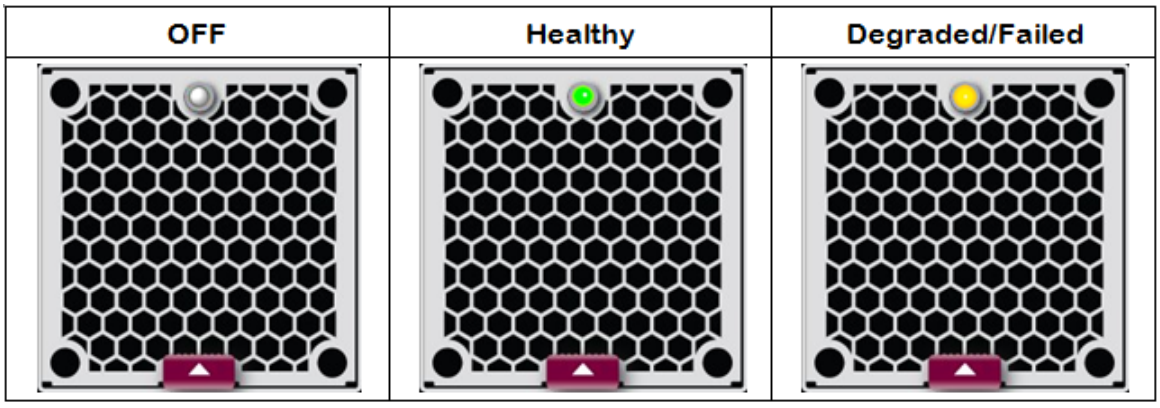


Table 11 SAS I/O module LEDs status

Item	Description	Status
1, 2	SAS Port 1	Green* = Healthy Amber = Issue
3, 4	SAS Port 2	Green* = Healthy Amber = Issue
5, 6	Overall I/O module status	Green = Healthy Amber = Issue
7, 8	SAS Port 3	Green* = Healthy Amber = Issue
9, 10	SAS Port 4	Green* = Healthy Amber = Issue
*If there is anything connected to a connector, the corresponding green LED is on and blinks off with activity. If there is nothing connected to a connector, both LEDs are off.		

Figure 43 Fan LEDs



The two fan modules are physically identical, but their control is not. The Fault/health LED on FAN 1 is a single bi-color LED controlled by the EMU via the Health Monitor – it is either off, steady green, or flashing amber. The lens of the fan LED is colorless and looks grayish-white when off.

System Fan — Fan 1

Fan 1 LED is driven by the EMU firmware. The fan microprocessor inside the Fan module cannot sense or control this LED. If the EMU fails, or if the connection between the EMU and the fan fails, the LED cannot be controlled and thus may not reflect actual state. Also, because Fan 1 LED has no power unless enclosure power is on, the EMU cannot indicate Fan status in standby mode.

There is no autonomic hardware circuit controlling the FAN Fault LED. Assuming the LED is working, it flashes Amber by the EMU if one or two of the 3 fan rotors is not functioning, or if the microprocessor on the fan module is unresponsive, or if code on the module is unreadable.

Drive Fan — Fan 2

The Fault/health LED on FAN 2 is not controlled at all by the EMU – but is controlled by one of the management processors inside the SAS I/O Module. This LED cannot be lit unless enclosure power is on, and its state depends upon signals from one of the SAS I/O modules.

To troubleshoot a degraded fan, you can use the EMU CLI commands `SHOW ENCLOSURE STATUS` and `SHOW ENCLOSURE FAN ALL` described in "Managing the EMU" (page 134).

EMU CLI SHOW commands

Use the EMU CLI `SHOW` commands described in "Managing the EMU" (page 134) to obtain additional information about component status as indicated by the hardware LEDs described in "Component LEDs" (page 47). To access the CLI, log in to the EMU as Administrator.

The system is shipped with a single enabled user account: `Administrator`. The password of the Administrator account is unique, programmed at the factory, and printed on the tear-away label on the back of the unit and the label on top of the EMU. Logging in to the system requires the Secure Shell protocol (SSH). Windows systems can use ssh clients such as `PuTTy`, which can be freely downloaded.

To log in to the EMU:

1. Note the IP address of the EMU.
2. ssh to the EMU.
3. Log in as Administrator.

The following is a sample login session:

```
login as: Administrator
------------------------------------------------------------------------------
WARNING: This is a private system.  Do not attempt to login unless you are an
authorized user.  Any authorized or unauthorized access and use may be moni-
tored and can result in criminal or civil prosecution under applicable law.
------------------------------------------------------------------------------
User: /src/bin/build@msaonyx
Script: ./parbuild Directory: /src/quire/QUIRE-CSP-1-20/daily/2011102701/bld/QUIRE-CSP-1-20
FileTag: 102720111904
Date: 2011-10-27T19:04:57
Firmware Output: jsbach
Firmware Version: 0x0120
SVN Version: 3414

Administrator@10.0.0.10's password:

HP CSP System Enclosure Manager
(C) Copyright 2006-2010 Hewlett-Packard Development Company, L.P.

Type 'HELP' to display a list of valid commands.
Type 'HELP ' to display detailed information about a specific command.
Type 'HELP HELP' to display more detailed information about the help system.

EM-78E7D1C140F2>
```

After logging in, you can set the Administrator password using the Enclosure Manager Settings window. Go to the `C:\Program Files\HP\HP Configuration Wizard` directory and double-click **HPEMConfig.exe**.

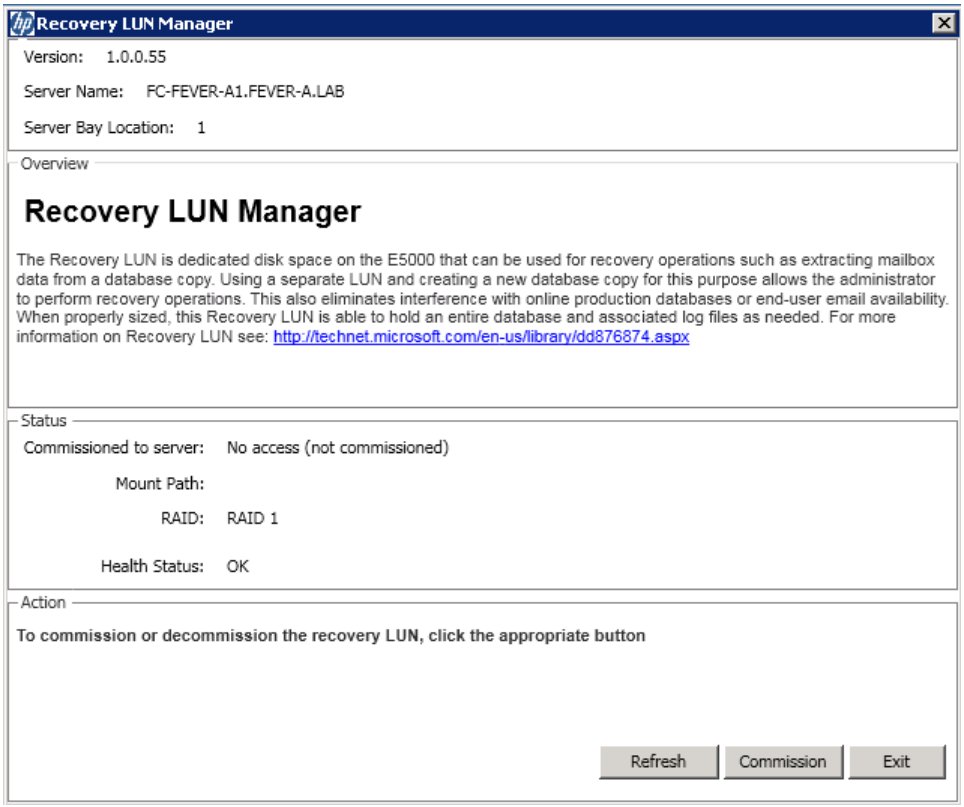
Using Recovery LUN Manager

The Recovery LUN is dedicated disk space that can be used for recovery operations such as extracting mailbox data from a database copy. In E5000 software versions 2.02.0a or earlier, there were two recovery LUNs – one drive per server that was configured as a RAID0 LUN. However, the RAID0 configuration meant there was no redundant data from which to recover a LUN. With the release of version 2.03.0a, there are still two drives but they share one RAID1 LUN. The RAID1 LUN remains offline until it is needed; you use Recovery LUN Manager to commission or decommission the recovery LUN as needed. The recovery LUN displays as the `R:\` drive (previously, the recovery LUNs were available at `C:\ExchangeDatabases\Recovery`).

When you upgrade to E5000 software version 2.03.0a or later, Recovery LUN Manager detects the previous recovery LUN configuration and displays a message to run the E5000 Configuration Wizard. You must run the wizard to configure the new recovery LUNs and allow for Recovery LUN Manager to be used as needed. The wizard delete the RAID0 LUNs and then configure the two drives as one RAID1 LUN.

You can access Recovery LUN Manager from Manage Storage under System Manager or from the Start menu on the system desktop. When needed, click **Commission** to create a recovery LUN. When you have finished the recovery operation, click **Decommission**.

Figure 44 Recovery LUN Manager

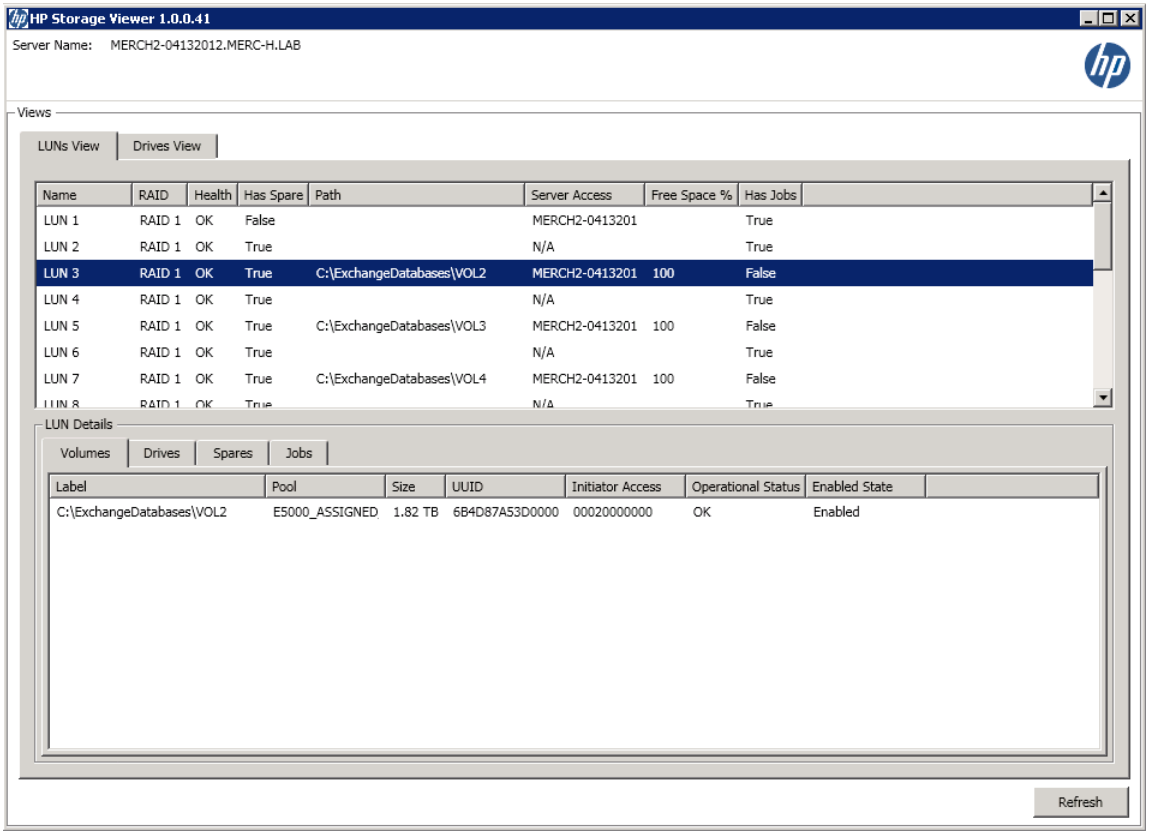

Recovery LUN Manager
Version: 1.0.0.55
Server Name: FC-FEVER-A1.FEVER-A.LAB
Server Bay Location: 1
Overview
Recovery LUN Manager
The Recovery LUN is dedicated disk space on the E5000 that can be used for recovery operations such as extracting mailbox data from a database copy. Using a separate LUN and creating a new database copy for this purpose allows the administrator to perform recovery operations. This also eliminates interference with online production databases or end-user email availability. When properly sized, this Recovery LUN is able to hold an entire database and associated log files as needed. For more information on Recovery LUN see: http://technet.microsoft.com/en-us/library/dd876874.aspx
Status
Commissioned to server: No access (not commissioned)
Mount Path:
RAID: RAID 1
Health Status: OK
Action
To commission or decommission the recovery LUN, click the appropriate button
Refresh
Commission
Exit

Using Storage Viewer

You can access Storage Viewer from Manage Storage under System Manager or from the Start menu on the system desktop. The Storage Viewer enables you to view details about each LUN – name, size RAID level, pool assignment, spare drive indication, and cluster disk name (if applicable). In the lower part of the tool, select one of the following tabs to view additional information:

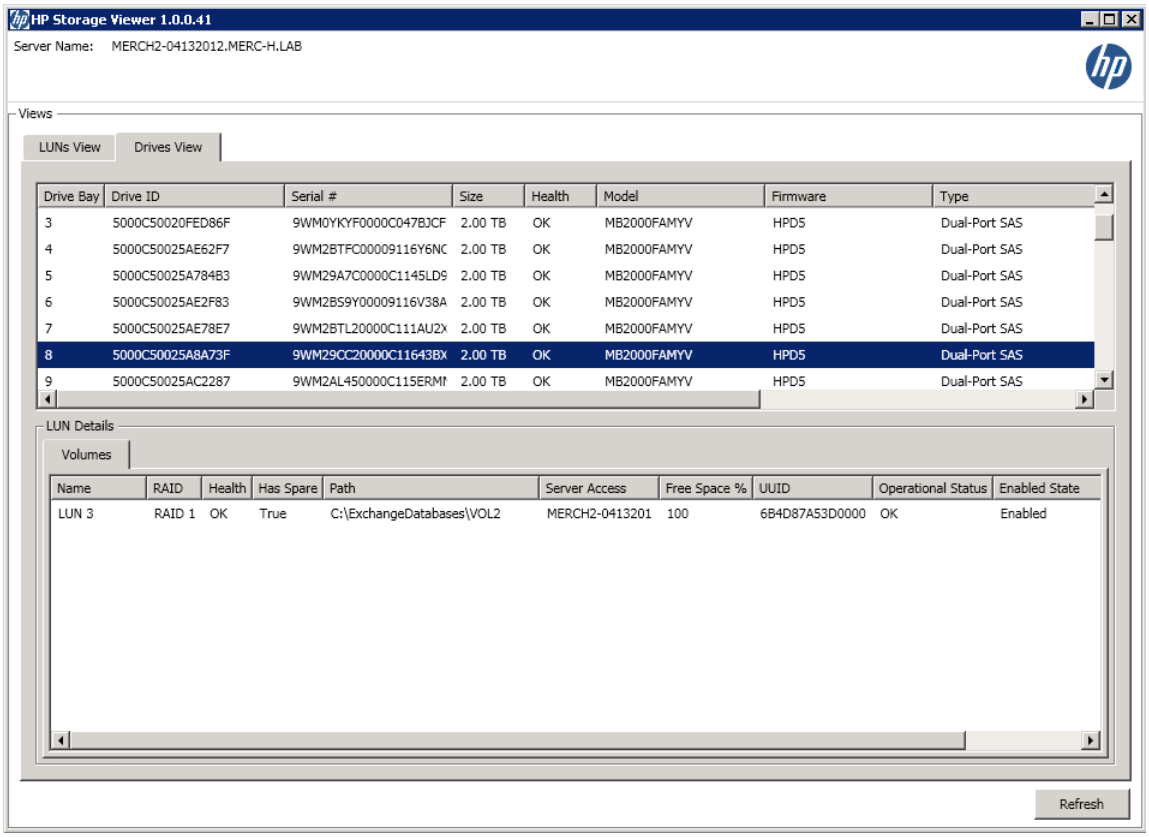
- Volumes: Displays any Windows volumes on the LUN, the volume label, and mount paths.
- Drives: Displays details about the physical drives that comprise the LUN (drive bay, size, RPM, disk name, and serial number).
- Spares: Displays details about any spares that are assigned to the LUN (drive bay, size, RPM, disk name, and serial number). If more information is available, when you hover over any part of the row, a tool tip opens with details.
- Jobs: Displays the status of any jobs running on the LUN (checking volume data integrity and rebuilding).

Figure 45 Storage Viewer (LUNs view)


HP Storage Viewer 1.0.0.41
Server Name: MERCH2-04132012.MERC-H.LAB
Views
LUNs View
Drives View
Name RAID Health Has Spare Path Server Access Free Space % Has Jobs
LUN 1 RAID 1 OK False MERCH2-0413201 True
LUN 2 RAID 1 OK True N/A True
LUN 3 RAID 1 OK True C:\ExchangeDatabases\VOL2 MERCH2-0413201 100 False
LUN 4 RAID 1 OK True N/A True
LUN 5 RAID 1 OK True C:\ExchangeDatabases\VOL3 MERCH2-0413201 100 False
LUN 6 RAID 1 OK True N/A True
LUN 7 RAID 1 OK True C:\ExchangeDatabases\VOL4 MERCH2-0413201 100 False
LUN Details
Volumes
Drives
Spares
Jobs
Label Pool Size UUID Initiator Access Operational Status Enabled State
C:\ExchangeDatabases\VOL2 E5000_ASSIGNED 1.82 TB 6B4D87A53D0000 00020000000 OK Enabled
Refresh

You can also view details about each drive – bay location, ID, serial number, size, health, and model number. In the lower part of the tool, you can view volume information related to the drive.

Figure 46 Storage Viewer (Drives view)


HP Storage Viewer 1.0.0.41
Server Name: MERCH2-04132012.MERC-H.LAB
Views
LUNs View
Drives View
Drive Bay Drive ID Serial # Size Health Model Firmware Type
3 5000C50020FED86F 9WM0YKYF0000C047BJCF 2.00 TB OK MB2000FAMYV HPD5 Dual-Port SAS
4 5000C50025AE62F7 9WM2BTFC00009116Y6NC 2.00 TB OK MB2000FAMYV HPD5 Dual-Port SAS
5 5000C50025A784B3 9WM29A7C0000C1145LD9 2.00 TB OK MB2000FAMYV HPD5 Dual-Port SAS
6 5000C50025AE2F83 9WM2BS9Y00009116V38A 2.00 TB OK MB2000FAMYV HPD5 Dual-Port SAS
7 5000C50025AE78E7 9WM2BTL20000C111AU2X 2.00 TB OK MB2000FAMYV HPD5 Dual-Port SAS
8 5000C50025A8A73F 9WM29CC20000C11643BX 2.00 TB OK MB2000FAMYV HPD5 Dual-Port SAS
9 5000C50025AC2287 9WM2AL450000C115ERMN 2.00 TB OK MB2000FAMYV HPD5 Dual-Port SAS
LUN Details
Volumes
Name RAID Health Has Spare Path Server Access Free Space % UUID Operational Status Enabled State
LUN 3 RAID 1 OK True C:\ExchangeDatabases\VOL2 MERCH2-0413201 100 6B4D87A53D0000 OK Enabled
Refresh

HP Support websites

Use the "Support and troubleshooting" task at the HP Support & Drivers website (http://www.hp.com/go/support) to troubleshoot problems with the messaging system. After entering the messaging system name and designation (for example, E5300 Messaging System) or component information (for example, SAS I/O module), use the following links for troubleshooting information:

- Download drivers and software—Provides drivers and software for your operating system.
- Troubleshoot a problem—Provides a listing of customer notices, advisories, and bulletins applicable for the product or component.
- Manuals—Provides the latest user documentation applicable to the product or component. User guides can be a useful source for troubleshooting information. For most messaging system hardware platforms, the following ProLiant server manuals may be useful for troubleshooting assistance:
  - **HP ProLiant Server User Guide** or **HP ProLiant Server Maintenance and Service Guide**

    These guides contain specific troubleshooting information for the server.
  - **HP ProLiant Servers Troubleshooting Guide**

    The guide provides common procedures and solutions for many levels of troubleshooting with a ProLiant server. For E5000 guides, go to www.hp.com/support/manuals, select **Solutions Appliances** under solutions, and select an E5000 product.

IMPORTANT: Some troubleshooting procedures found in ProLiant server guides may not apply to the messaging system. If necessary, check with your HP Support representative for further assistance.

For software-related components and issues, online help or user guide documentation may offer troubleshooting assistance. Known issues, workarounds and service releases are addressed in this guide or the release notes.

- Customer notices—Address informational topics about the E5000 Messaging System.
- Customer advisories—Address know issues and solutions or workarounds.

NOTE: You must register for Subscriber's Choice to receive customer advisories and notices. See "Subscription service" (page 131) for more information.

HP Insight Remote Support software

HP strongly recommends that you install HP Insight Remote Support software to complete the installation or upgrade of your product and to enable enhanced delivery of your HP Warranty, HP Care Pack Service, or HP contractual support agreement. HP Insight Remote Support supplements your monitoring, 24x7 to ensure maximum system availability by providing intelligent event diagnosis, and automatic, secure submission of hardware event notifications to HP, which initiates a fast and accurate resolution, based on the service level of your product. Notifications may be sent to your authorized HP Channel Partner for onsite service, if configured and available in your country. The software is available in two variants:

- HP Insight Remote Support Standard: This software supports server and storage devices and is optimized for environments with 1 to 50 servers. Ideal for customers who can benefit from pronotification, but do not need proservice delivery and integration with a management platform.
- HP Insight Remote Support Advanced: This software provides comprehensive remote monitoring and proservice support for HP servers, storage, network and SAN environments, plus selected non-HP servers than have a support obligation with HP. It is integrated with HP Systems Insight

Manager. A dedicated server is recommended to host both HP Systems Insight Manager and HP Insight Remote Support Advanced.

To implement Insight Remote Support for E5000 systems, follow the instructions in release A.05.50 or later of the following guides:

- *HP Insight Remote Support Quick Installation Guide (for standard and advanced support)*
- *HP Insight Remote Support Standard Hosting Device Configuration Guide* (for standard support)
- *HP Insight Remote Support Advanced CMS Configuration and Usage Guide* (for advanced support)
- *HP Insight Remote Support Standard Managed Systems Configuration Guide* (for standard support).

For Insight Remote Support Standard documentation, go to:

http://www.hp.com/go/insightremotestandard-docs

For Insight Remote Support Advanced documentation, go to:

http://www.hp.com/go/insightremoteadvanced-docs

Be aware of the following specifics for E5000 systems:

- The messaging system is a "managed system" as described in Insight Remote Support guides.
- The E5460sb is equivalent to a ProLiant server and meets all the requirements for a managed system.

  Follow guidelines and procedures for Windows ProLiant servers in the Insight Remote Support documentation.
- The messaging system hardware is preconfigured for Insight Remote Support and uses the WMI (WBEM) provider.
- Register the system using the E5000 product number and serial number, instead of the blade serial number and part number.

  Confirm and overwrite any prepopulated values with the serial number of the messaging system. The product number and serial number are located on the tear-away label at the EMU on the back of the messaging system, see Figure 47 (page 60).
- You must to register WBEM access credentials in HP SIM for Insight Remote Support Advanced.

Microsoft Systems Center Operations Manager

Microsoft Systems Center Operations Manager (SCOM) provides comprehensive monitoring, performance management, and analysis tools to maintain Windows OS and application platforms. This solution allows you to monitor Microsoft Windows environments and HP storage products through a common OpsMgr console. To download HP management packs for Microsoft System Center Operations Manager, including installation, configuration, and usage documentation, visit the **HP Management Packs for Microsoft Systems Center** site at:

www.hp.com/go/storageworks/scom2007

HP 1210m Volume Online Tool

Use the HP 1210m Volume Tool to manually set all volumes online. Manually setting volumes online may be necessary if a disk enclosure is powered down before the server blades are powered down and the enclosure contains disks with LUNs on them.

IMPORTANT: You should only use this tool under the guidance of HP Support to avoid potential data loss.

The tool is included (but not installed) with HP E5000 software version 2.01.1b or later.

To install the tool:

1. Navigte to the `C:\hpnas\support` directory on the server blade.
2. Double click `Volume_Manager_Install.msi`.

To use the tool:

1. Navigate to `C:\Program Files (x86)\Hewlett-Packard\HP 1210m Volume Online Tool`.
2. Double-click `HPVolumeOnlineTool.exe` to start the tool.

   NOTE: Before the tool opens, a disclaimer about potential data loss is displayed. Read the disclaimer and accept the terms to continue. If you decline, the tool closes.

3. When the HP 1210m Volume Online Tool opens, the LUNs that are in an Enabled but Offline state are displayed.
4. Click **Force Online**.

When the operation is complete, the tool indicates that the LUNs are now in the Enabled state.

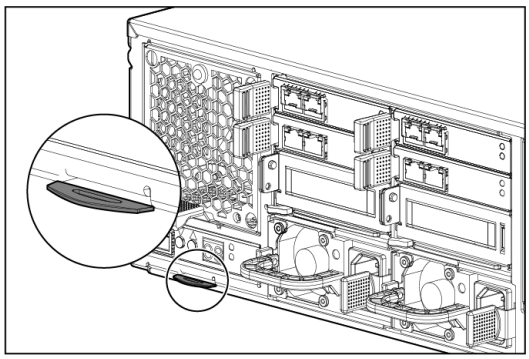
Obtaining the Service Agreement ID

Obtain the SAID from your service contract agreement and keep it in a secure location. You must provide it when you contact HP Support.

Locating the messaging system warranty entitlement label

You must locate and identify the serial number and product number for the messaging system components to obtain service under the warranty. The numbers are listed on the warranty entitlement label located on the pull-out tab below the Enclosure Management module on the back of the enclosure (Figure 47 (page 60)).

Figure 47 Warranty entitlement label location



6 Upgrading the messaging system

The E5000 Messaging System is comprised of a common hardware platform containing two server blades. Each server runs Window Server 2008 R2 or later. Several value-add software components bundled with the operating system make the E5000 Messaging System a fully integrated Microsoft Exchange solution.

When HP determines that it is desirable to upgrade one or more of these components, a notification is posted to the HP support website for the E5000 Messaging System with the release notes and the updated code. HP recommends that you upgrade the messaging system software as part of normal system maintenance for increased reliability and a better customer experience. Upgrades might also be necessary when replacing a server blade or other component.

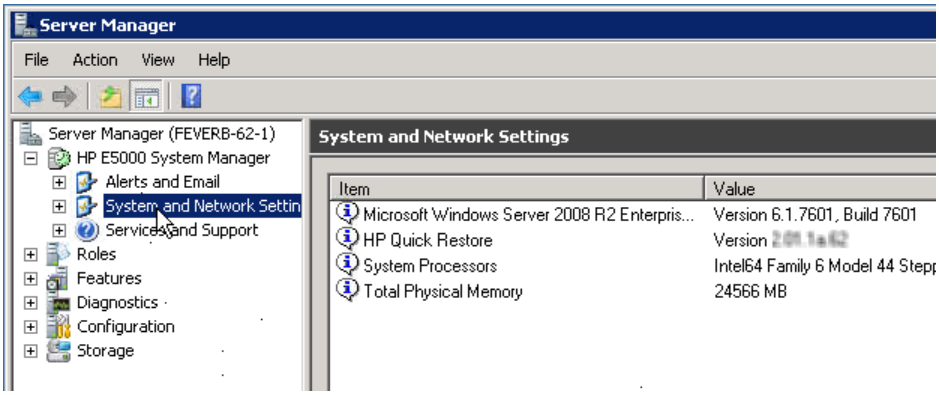
Determining the current messaging system software version

You can find the version using the Server Manager or the registry.

From the Server Manager:

1. Expand the tree under System Manager.
2. Select **System and Network Settings** and locate the value for HP Quick Restore.
3. Read the value for HP Quick Restore in the **System and Network Settings** right pane.

Figure 48 System and network settings



From the registry:

1. Log in to the server blade.
2. Open a command window.
3. Enter the `reg query` command as shown in the following example:

   ```
   C:\> reg query HKLM\Software\Wow6432Node\Hewlett-Packard\StorageWorks /s
   ```

   The following information appears:

   ```
   HKEY_LOCAL_MACHINE\Software\Wow6432Node\Hewlett-Packard\StorageWorks\QuickRestore
       BASE    REG_SZ    2.0.1.21
       QRVersion    REG_SZ    2.01.1a.93
   ```

   The QRVersion field lists the version.

Upgrading E5000 software

You must perform the same upgrade on each server in the messaging system.

IMPORTANT: Do not start the upgrade until you are certain you want to apply it. The upgrade cannot be reversed.

To perform the upgrade:

1. Log in to Server 1 as Domain Administrator.
2. Go to www.hp.com/go/support.
3. Select **Drivers and software**.
4. Enter E5000 in the **Enter a product name/number** box and click **Search**.
5. Navigate to your product and select the latest HP E5000 zip file, which contains the service release installer and the Release Notes. Follow the instructions included with the service release for installation.

Upgrading a component's firmware

To determine if a component requires a firmware upgrade:

IMPORTANT: Remember the following:

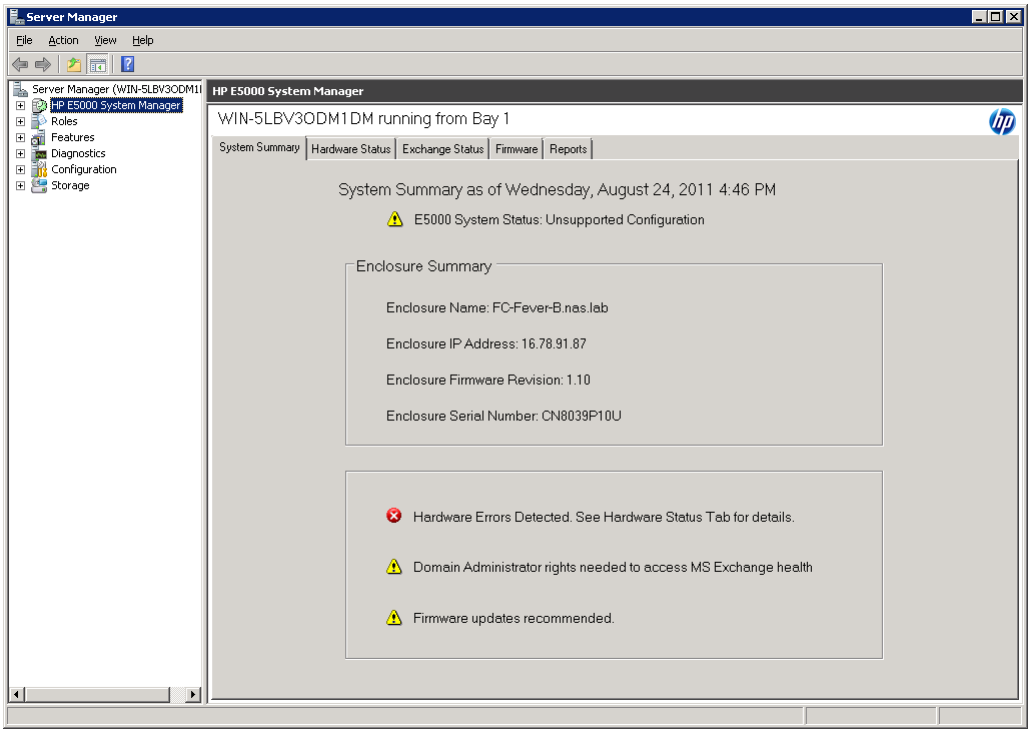
- You must complete these steps on each server.
- HP recommends that you complete any upgrade during a scheduled maintenance period and/or during periods of low user activity.
- If you are upgrading the disk drives that contain the Exchange databases, shut down Server Blade 2, Bay 2 before proceeding with the upgrade on Server Blade 1, Bay 1. When the upgrade has completed, you must power off both servers and then power on both servers to complete the upgrade.

1. Download the latest firmware:
   a. Go to http://www.hp.com/go/support.
   b. Select **Drivers and Software**.
   c. Enter the applicable product name or number and click **Search**.
   d. Navigate to your product and download the available firmware upgrades to your typical server download location.
2. Execute the downloaded file and it will extract the required files to the required directory for the Firmware update tool to use them.

   Once the latest firmware is loaded on the server in the correct directory, the System Summary and Firmware tabs in the System Manager will indicate when a firmware upgrade is available for a component.
3. Select the System Manager in Server Manager. Click the **System Summary** tab, and inspect the **Firmware update recommended** icon status (Figure 49 (page 63)). If the icon is green, no firmware update is needed. If the icon is yellow, a firmware update is required. You can also check the Software component on the System Management Homepage to verify what

firmware versions are currently installed. See “HP System Management Homepage” (page 38) for more information.

Figure 49 System summary tab

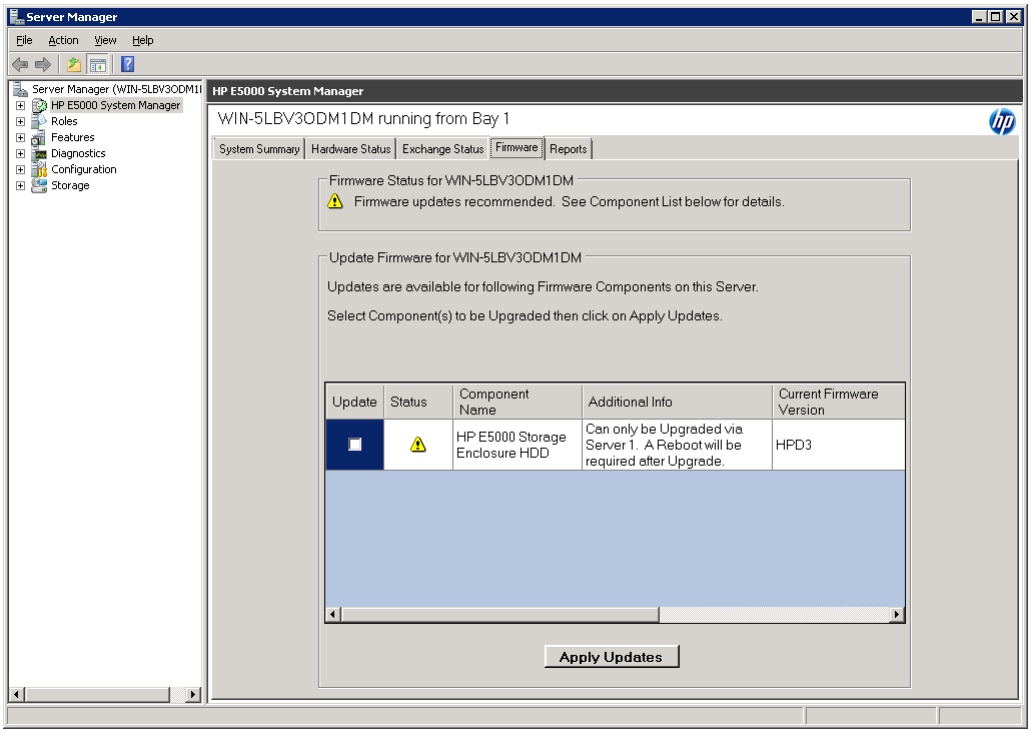


4. If a firmware update is needed, select the **Firmware** tab to view a list of the components that can be upgraded (Figure 50 (page 64)).

   The list of components can include:

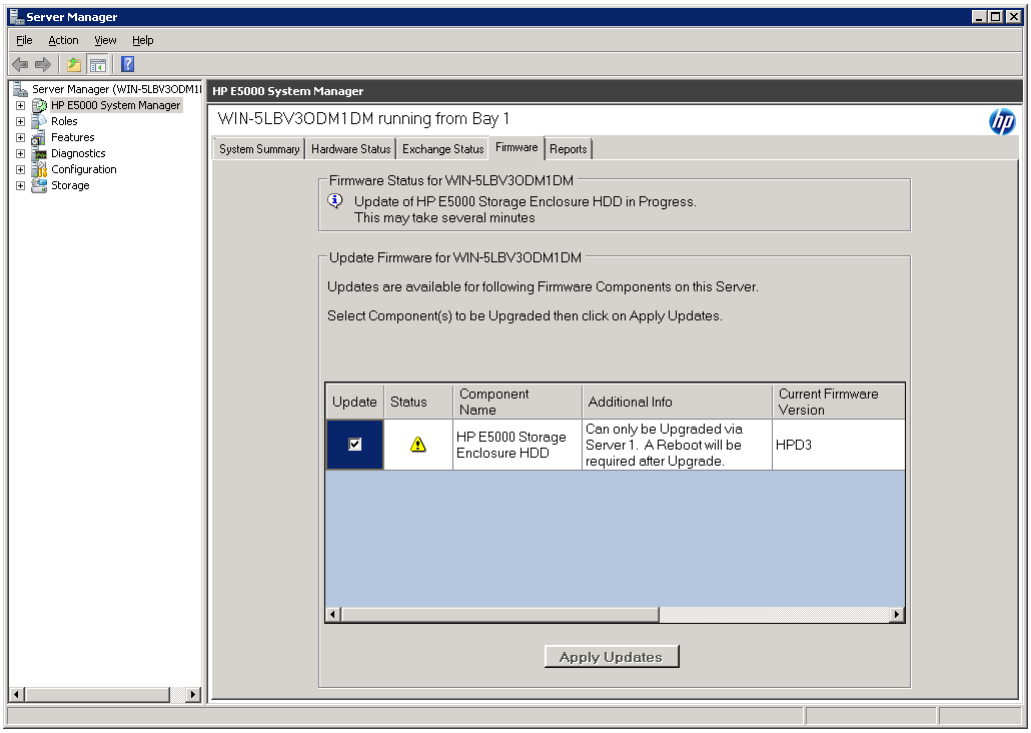
   - Integrated Lights-Out (iLO)
   - HP 1210m controller
   - System ROM (I24 or I27) for the server blade
   - Power Management controller firmware (c-Class blades)
   - Smart Array HP P410i Blade HDD controller
   - Enclosure Manager Unit (EMU)
   - External half of the SAS I/O module
   - Internal half of the SAS I/O module
   - I/O module on an HP E5000 expansion disk enclosure
   - Hard disk drives (various models)

Figure 50 Firmware tab



5. On the Firmware tab, select the box next to each component to be upgraded.
6. Click **Apply Updates**. The status reports that an upgrade is in progress (Figure 51 (page 65)).

Figure 51 Component selected for update



CAUTION: When upgrading the 1210m controller firmware, HP recommends that you perform the upgrade in the following order:

1. Upgrade the 1210m controller firmware on node 1.
2. Upgrade the 1210m controller firmware on node 2.
3. Power cycle node 1 and wait for it to come online.
4. Power cycle node 2.

Otherwise, the firmware may synchronize with the controller running the previous version of code.

If, after upgrading the firmware on the controllers, the messaging system does not see any storage or the controllers do not start, see "Resolving errors after the HP 1210m controller upgrade" (page 66).

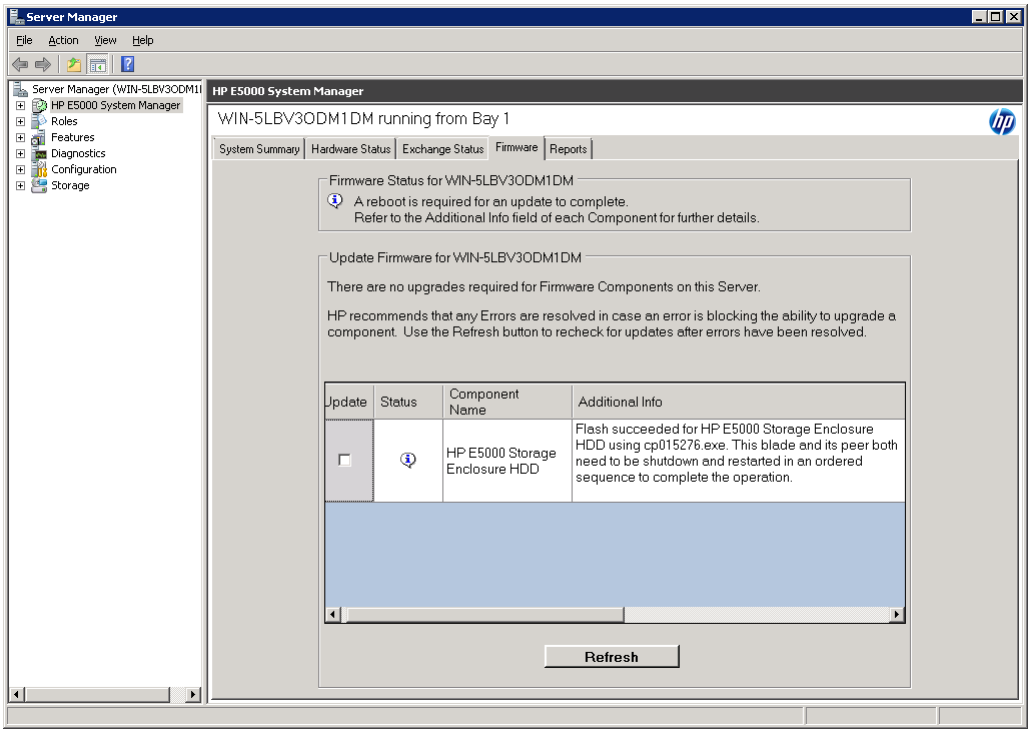
NOTE: Each firmware upgrade takes a few minutes to complete. If you are upgrading multiple components, such as hard drives, the upgrade takes more time.

7. Reboot the server blade from the Start menu, if needed.

   A message appears on the **Firmware** tab to alert you if a reboot is required after each component firmware upgrade (Figure 52 (page 66)). After the upgrade completes, the **Firmware Status** changes from "Firmware updates recommended" to "A reboot is required."

NOTE: If a reboot is *not* required after the component firmware upgrade completes, a green checkmark displays next to the component name.

Figure 52 Firmware status


Server Manager
File Action View Help
Server Manager (WIN-5LBV3ODM1I
HP E5000 System Manager
Roles
Features
Diagnostics
Configuration
Storage
HP E5000 System Manager
WIN-5LBV3ODM1DM running from Bay 1
System Summary
Hardware Status
Exchange Status
Firmware
Reports
Firmware Status for WIN-5LBV3ODM1DM
A reboot is required for an update to complete.
Refer to the Additional Info field of each Component for further details.
Update Firmware for WIN-5LBV3ODM1DM
There are no upgrades required for Firmware Components on this Server.
HP recommends that any Errors are resolved in case an error is blocking the ability to upgrade a component. Use the Refresh button to recheck for updates after errors have been resolved.
Update
Status
Component Name
Additional Info
HP E5000 Storage Enclosure HDD
Flash succeeded for HP E5000 Storage Enclosure HDD using cp015276.exe. This blade and its peer both need to be shutdown and restarted in an ordered sequence to complete the operation.
Refresh

8. Open the Firmware tab in the System Manager and verify that the upgrade was successful. You can also check the upgrade status on the System Summary tab.

   If the firmware upgrade failed, the component is listed as an available upgrade in the Firmware tab after the firmware upgrade and reboot. To determine the next steps for a successful firmware upgrade, go to the **Reports** tab (see "Reports" (page 46)) and run a report.

Resolving errors after the HP 1210m controller upgrade

If the firmware upgrade for the HP 1210m controller does not complete successfully, the controllers could stop responding. As a result, the Controller Properties dialog box in Windows Device Manager displays "This device cannot start" and the messaging system Configuration Wizard fails to detect storage.

To resolve this issue, first try the Simple method. If the issue persists, try the Advanced method.

Simple method:

1. Upgrade the HP 1210m controller firmware on one server blade.
2. Upgrade the HP 1210m controller firmware on the other server blade.
3. Shut down both server blades.
4. Power on both server blades.

Advanced method:

1. Shut down both server blades and power off the entire HP E5000 enclosure.
2. Power off and disconnect all expansion disk enclosures.
3. Pull one of the server blades a quarter of the way out of the enclosure.
4. Power on the HP E5000 enclosure.
5. If not already powered on, power on the server blade that remained in the enclosure.
6. Open System Manager.
7. Select the **Firmware** tab.
8. Select the 1210m controller and click **Apply Updates**.
9. Shut down the server blade that was powered on in Step 5.

10. Power off the HP E5000 enclosure.
11. Push the other server blade back into the enclosure.
12. Reconnect the expansion disk enclosures.
13. Power on the HP E5000 enclosure and both server blades.
14. Verify that the 1210m controller firmware in both server blades is current.

Resolving an EMU upgrade issue

When upgrading the EMU firmware when running a version of E5000 software earlier than 2.02.1b, if the EMU and the server blade initiating the upgrade are not on the same subnet, the upgrade fails. The following message (an example) displays on the System Manager Firmware tab:

```
Flash failed for Enclosure Management Unit (EMU) using cpXXXXXX.exe.
Check log files (C:\ProgramData\Hewlett-Packard\CMP\logs\firmware.log
and C:\CPQSYSTEM\log\cpqsetup.log) for further information.
```

The `C:\CPQSYSTEM\log\EmuFlash.log` displays the following information (an example only):

```
Enclosure Manager information:Product Name : HP CSP EMUPart Number :
620022-001Serial Number : PBCYU0G9V0C01XUUID :
99PBCYU0G9V0C01XManufacturer
: HPFirmware Ver. : EM: 1.10 Jul 12 2011; HM: 1.3EMU Type : 1Hw Version
: Rev. BAux Info : SVN: 3221 branches/QUIRE-CSP-1-10
1.10 Jul 12 2011
Starting Flash Routine
Launching Http Server
Host IP Address:
Host IP not found
```

If this issue occurs, configure the EMU and server blade networking to be on the same subnet and retry the firmware upgrade.

Upgrading hardware components

To replace a hardware component with an upgrade, follow the component removal and replacement instructions in "Removing and replacing hardware components" (page 69). For example, to replace the HP 1 GB Ethernet I/O module with a 10 GB module, follow the instructions in "Removing and replacing the HP Ethernet I/O module" (page 86). If you need to shut down a server blade or the messaging system to replace a component, follow the instructions in "Powering the system off and on" (page 67).

Powering the system off and on

Follow these steps to shut down a single server blade or to perform a system shutdown:

1. From the Windows desktop, select **Start→Shut Down** as follows:
   a. While you are connected to blade 2, shut down blade 2 by clicking **Start**, and then **Shut Down**.
   b. While you are connected to blade 1, shut down blade 1 by clicking **Start**, and then **Shut Down**.

   NOTE: Let the Windows shutdown run to completion, which will power the blade off.

2. Power off any disks in expansion disk enclosures by pressing and holding down the power button located on the back of each expansion disk enclosure.

3. Power off the messaging system enclosure by pressing and holding down the power button located on the back of the enclosure.
4. Disconnect the power cables (optional).
5. To power on the server blades and system, reconnect the power cables and power on the components in the following order:
   - Expansion disk enclosures
   - System enclosure
   - Server blades, if necessary (typically they start up when the enclosure is powered on)

7 Removing and replacing hardware components

This chapter describes procedures for removing and replacing hardware components.

Customer self repair

HP customer self repair (CSR) programs allow you to repair your HP product. If a CSR part needs replacing, HP ships the part directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your HP-authorized service provider determines whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider, or see the CSR website:

http://www.hp.com/go/selfrepair

Best practices for replacing components

The following sections provide information to help you successfully replace the hardware components on your system.

⚠ **WARNING!** To reduce the risk of personal injury or damage to the equipment:

- Be sure that only one component is extended from a rack at a time. A rack may become unstable if more than one component is extended at the same time.
- Do not extend the hard drive drawers beyond the supporting surface when the unit is not installed in a rack.

⚠ **CAUTION:** Removing a component significantly changes the air flow within the enclosure. All components must be installed for the enclosure to cool properly. If a component fails, leave it in place in the enclosure until a new component is available for installation.

IMPORTANT: Be sure to unpack the replacement part before you remove the existing component.

During replacement of the failed component

- HP recommends waiting until periods of low system activity to replace a component.
- For all hot/warm swappable components (SAS I/O module, fan module, Ethernet I/O module, PCIe module, server airflow baffle, server blades, and hard drives), be sure to unpack the replacement part before removing the existing part.
- When replacing components at the rear of the rack, cabling may obstruct access to the component. Carefully move any cables out of the way to avoid loosening any connections. In particular, avoid cable damage that may be caused by:
  - Kinking or bending
  - Disconnecting cables without capping. If uncapped, cable performance may be impaired by contact with dust, metal, or other surfaces.
  - Placing removed cables on the floor or other surfaces where they may be walked on or otherwise compressed.

Accessing component replacement videos

HP produced videos of the procedures to assist you in replacing components. To view the videos, go to the HP Customer Self Repair Services Media Library website and navigate to your product: http://www.hp.com/go/sml

Identifying the spare part

Parts have a nine-character spare part number on their label. For some spare parts, the part number is available in the system. Alternatively, the HP call center can assist in identifying the correct spare part number.

Replaceable parts

This product contains replaceable parts. To identify the replaceable parts, see the individual component guides listed in Table 13 (page 73).

Parts that are available for CSR are indicated as follows:

- Mandatory CSR — You order the part directly from HP and repair the product yourself. On-site or return-to-depot repair is not provided under warranty.
- Optional CSR — You can order the part directly from HP and repair the product yourself, or you can request that HP repair the product. If you request repair from HP, you may be charged for the repair depending on the product warranty.
- No CSR — The replaceable part is not available for self repair. For assistance, contact an HP-authorized service provider.

For more information about CSR — contact your local service provider. For North America, see the CSR website:

http://www.hp.com/go/selfrepair

To determine the warranty service provided for this product, see the warranty information website:

http://www.hp.com/go/storagewarranty

To order a replacement part, contact an HP-authorized service provider or see the HP Parts Store online:

http://www.hp.com/buy/parts

Figure 53 (page 71) shows an exploded view of the system.

Figure 53 Exploded view of the system

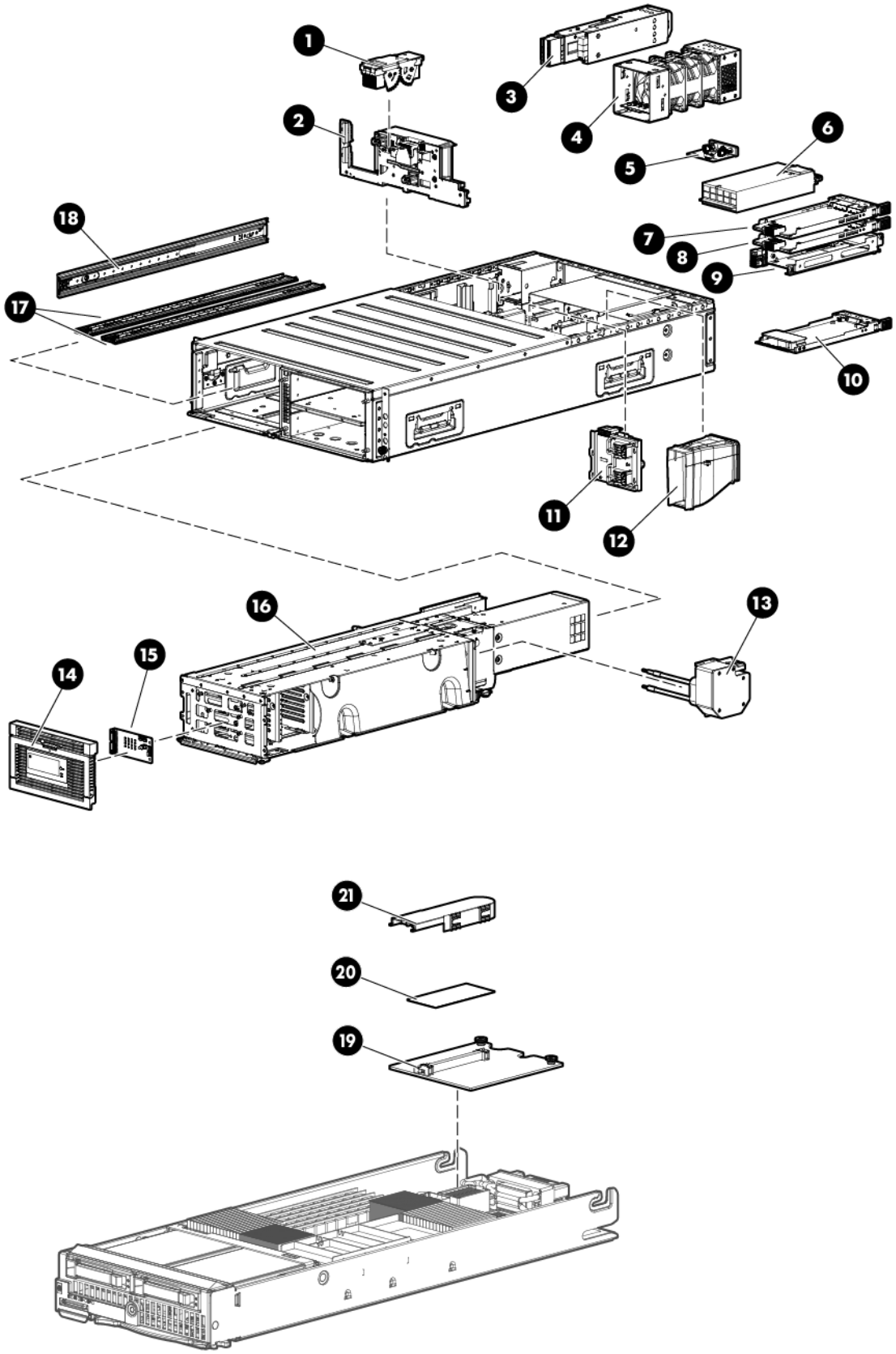


Table 12 (page 72) lists the CSR replaceable parts for the system.

Table 12 Messaging system replaceable parts

Item	Replaceable unit (RU)	Part number	CSR availability	Replacement type (Cold, Warm, Hot)
1	Server interposer	631117-001	Optional	Cold
2	Midplane board	631115-001	No	Cold
(Not shown)	.5 M mini SAS cable	408765-001	Mandatory	Hot
(Not shown)	Mini SAS cable 2 M	408767-001	Mandatory	Hot
(Not shown)	Mini SAS cable 4 M	408768-001	Mandatory	Hot
3	LFF SAS I/O module	631941-001	Mandatory	Hot
4	Fan modules	631109-001	Mandatory	Hot
5	Power UID button assembly	399054-001	Optional	Cold
6	Power supplies	631942-001	Mandatory	Hot
7	2-port 1 GB Ethernet module	631110-001	Mandatory	Hot
(Not shown)	2-port 10 Gb Ethernet module	631111-001	Mandatory	Hot
8 (E5300 only)	Mezzanine blank	631134-001	Mandatory	Hot
(Not shown)	1 Gb intraconnect module	631114-001	Mandatory	Hot
9	PCIe module	631942-001	Optional	Warm
10	Enclosure Manager module	631112-001	Mandatory	Hot
11	Server blade backplane	631116-001	No	Cold
12	Server airflow baffle	631129-001	No	Cold
13	Coil power assembly	631130-001	No	Cold
14	Drive drawer bezel LFF	631118-001	Optional	Cold
15	LFF LED display board	631126-001	Optional	Cold
16	LFF drive drawer assembly	631128-001	Optional	Cold
(Not shown)	Hard drive drawer blanks	389015-001	Mandatory	Hot
(Not shown)	1 TB Hard drive	508011-001	Mandatory	Hot
(Not shown)	2 TB Hard drive	508010-001	Mandatory	Hot
17	Drawer rails bottom	631131-001	No	Cold
18	Drawer rails left	631132-001	No	Cold
(Not shown)	Mezzanine NIC	462748-001	Optional	Warm
(Not shown)	Right ear bezel on chassis (3, one for each model)	629960-001, 629960-002, 629960-003	Optional	Hot
19	1210m controller	615360-001	Optional	Warm
20	Cache module for 1210m	598414-001	Optional	Warm
21	Supercapacitor for 1210m Cache	587225-001	Mandatory	Warm
(Not shown)	Rail kit assembly	631133-001	Optional	Cold
(Not shown)	HP 82B HBA (Brocade) PCI fibre HBA	AP770A	Optional[1]	Cold

Table 12 Messaging system replaceable parts *(continued)*

Item	Replaceable unit (RU)	Part number	CSR availability	Replacement type (Cold, Warm, Hot)
(Not shown)	HP 82E HBA (Emulex)	AJ763A	Optional[1]	Warm
(Not shown)	HP 82Q HBA (Q-Logic)	AJ764A	Optional[1]	Warm

[1] Used only for backup. See www.hp.com/go/ebs for information about tested backup applications.

For more information on removing and replacing components, see Table 13 (page 73) for a list of individual component documents.

Table 13 Related component documents

Component	Component name	Guide
Server blade	E5460sb blades	*HP ProLiant BL460c G7 Server Blade Maintenance and Service Guide*
Disks in expansion disk enclosures	HP E5000 Messaging System 12 TB expansion disk enclosure and HP E5000 Messaging System 24 TB expansion disk enclosure	*HP D2600/D2700 Disk Enclosure User Guide*

Hot, warm, and cold swap components

Hot or warm swapping a component means removing and replacing it while the main power is still on. Cold swapping means removing and replacing the component while the main power is off. Port (purple) colored handles on components like the fan module indicate the component is hot-swappable.

IMPORTANT: Remove and replace components quickly without interrupting the process.

Preventing electrostatic discharge

CAUTION: Components can be damaged by electrostatic discharge (ESD). Use proper antistatic protection.

- Always transport and store CSR replaceable parts in an ESD-protective enclosure.
- Do not remove CSR replaceable parts from the ESD-protective enclosure until you are ready to install it.
- Always use ESD precautions, such as a wrist strap, heel straps on conductive flooring, and an ESD-protective smock when handling ESD-sensitive equipment.
- Avoid touching all connector pins, leads, or circuitry.
- Do not place ESD-generating material such as paper or non-antistatic (pink) plastic in an ESD-protective with ESD-sensitive equipment.

Verifying component failure

Use the following methods to verify component failure:

- Analyze any failure messages received. Fault monitoring software from HP provides a recommended action.
- From the System Manager, select the **System Summary** tab to check the enclosure health status or select the **Hardware Status** tab to identify a failed component. See "Using the System Manager" (page 42) for more information.
- You can also use the System Management Homepage to identify hardware problems. For example, to identify the affected enclosure, select **Unit Identification Device** in the Enclosure pane and then on the Unit Identification Device window, click **On**. The blue UID indicator on

the controller enclosure blinks. See "HP System Management Homepage" (page 38) for more information.

- Look for a blinking amber LED on the component. See "Component LEDs" (page 47) for LED information.

Verifying proper operation

After replacing a system component, check the following to verify that the component is operating properly:

- If applicable, verify that the green LED is lit continuously or blinking. If not, try reseating the component.
- From the System Manager, navigate to the **Hardware Status** and **System Summary** tabs to confirm the component failure alert no longer appears. The status should be (Good).

Wait times for hard disks

If the hard drive **is part of a volume**, the following wait times apply:

Removal: Less than three seconds for the LED to turn off

Insert:

- Less than one second for first disk activity
- Less than 15 seconds for the disk to be ready for REBUILD. The LED blinks at 1 Hz.

NOTE: The transition to solid green depends on how long the REBUILD takes (the LEDs indicate REBUILD).

If the hard drive is **not part of a volume**, the following wait times apply:

Removal: No indication appears because the LED is already off

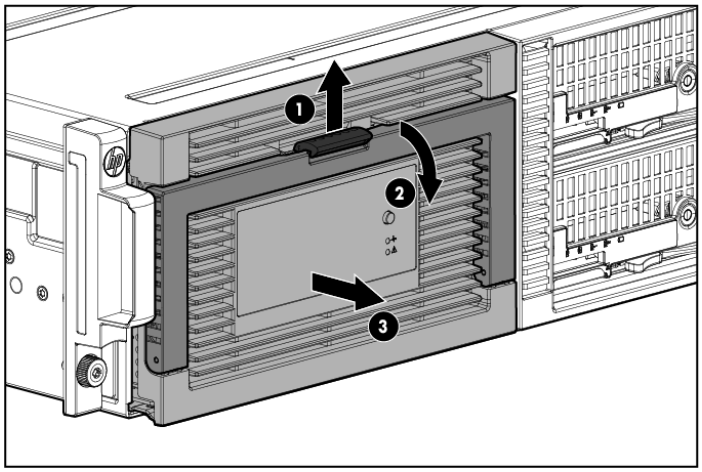
Insert:

- Less than one second for the first disk activity to appear
- Less than 15 seconds for the disk to be ready to use

Removing the system enclosure from the rack

1. Extend the hard drive drawer (Figure 54 (page 75)):
   a. Press upward on the release button on the hard drive drawer (1).
   b. Pull the drawer handle down 90 degrees (2).
   c. Extend the hard drive drawer (3).

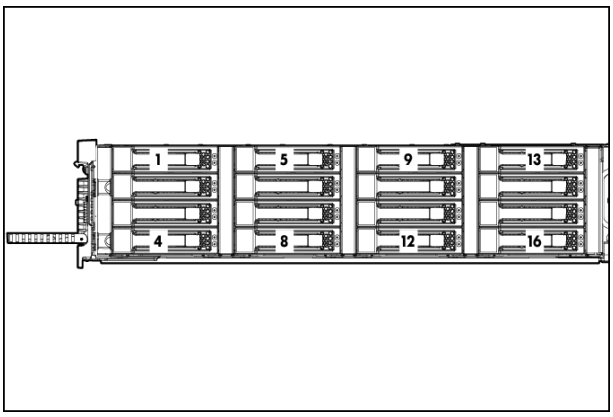
Figure 54 Extending the hard drive drawer



2. Label the hard drives (Figure 55 (page 75)).

IMPORTANT: Use the drive labels provided with the replacement part when removing the drives to ensure you replace the drives in the correct order.

Figure 55 Hard drive labeling



3. Remove all hard drives.

WARNING! Carefully check the drive labels provided with the replacement board, and then install the hard drives in the same slots from which you removed them. If the drives are not installed in the correct slots, the system might fail.

4. Push the hard drive drawer back into the system enclosure.
5. Label each server blade and then remove both server blades.
6. Label the cables and then unplug all cables from the back of the system enclosure.

7. Unscrew the retaining screws from the bezel ears, and then remove the enclosure from the rack.

WARNING! The system enclosure is heavy, even after removing the hard drives. Always use at least two people to remove the system from the rack.

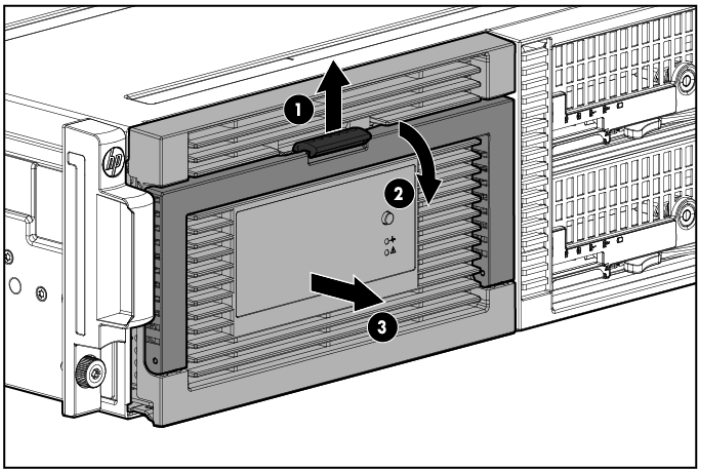
Inserting the system enclosure into the rack

1. Place the enclosure into the rack, and secure the enclosure by tightening the two retaining screws.

WARNING! The system enclosure is heavy, even after removing the hard drives. Always use at least two people to replace the system in the rack.

2. Replace both server blades in their original bays.
3. Extend the hard drive drawer (Figure 56 (page 76)):
   a. Press upward on the release button on the hard drive drawer (1).
   b. Pull the drawer handle down 90 degrees (2).
   c. Extend the hard drive drawer (3).

Figure 56 Extending the hard drive drawer



4. Replace all hard drives.

IMPORTANT: Install the hard drives in the same slots from which you removed them or the system might fail. Use the drive labels to ensure that you replace the drives in the correct order.

5. Push the hard drive drawer back into the system enclosure.
6. Plug in all cables at the back of the system enclosure, and ensure that all cables are returned to their original locations.
7. Power on the system by pressing the power button **ON**.
8. Confirm that the system has resumed normal operations.

Removing and replacing the server interposer board

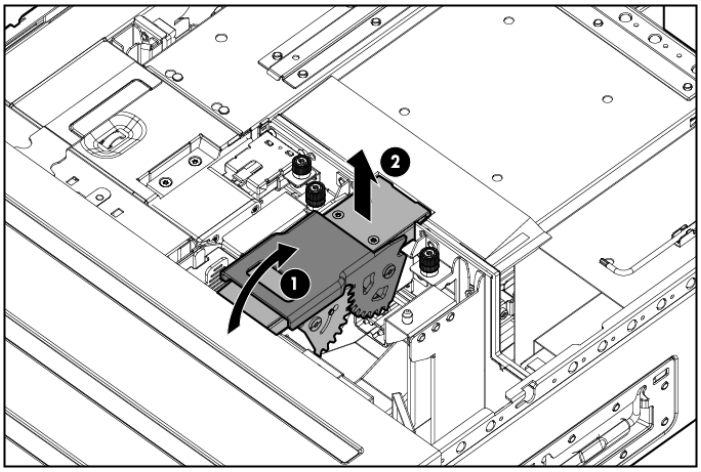
Removing the server interposer board

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Power off the system as described in "Powering the system off and on" (page 67).
3. Remove the enclosure from the rack as described in "Removing the system enclosure from the rack" (page 75).

4. Remove the top back panel by pressing the panel release button and lifting the latch to slide the top back panel off.
5. Open the release handle (1, Figure 57 (page 77)), and pull up to remove the server interposer board (2, Figure 57 (page 77)).

NOTE: You may need to use significant force to accomplish this task.

Figure 57 Removing the server interposer board

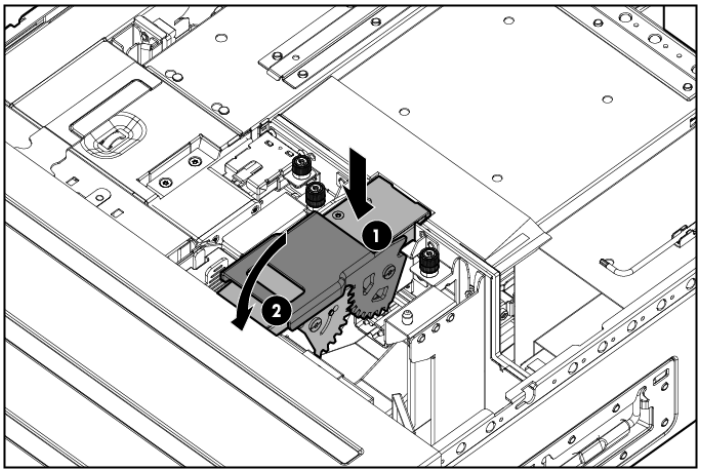


Replacing the server interposer board

1. With the release handle open, align the server interposer board with the alignment pins (1, Figure 58 (page 77)), and then close the server interposer release mechanism (2, Figure 58 (page 77)).

NOTE: Remember to move the server backplane power cable out of the way of the alignment pins.

Figure 58 Replacing the server interposer board



2. Reinstall the top back panel.
3. Replace the enclosure in the rack as described in "Inserting the system enclosure into the rack" (page 76).

Removing and replacing the midplane board

Removing the midplane board

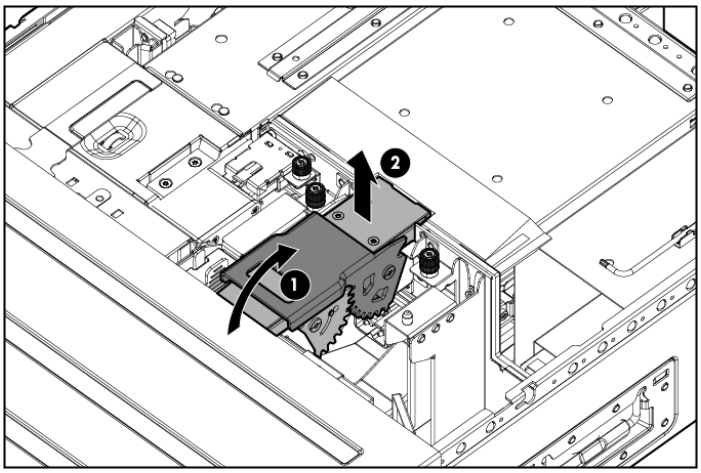
1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Power off the system as described in "Powering the system off and on" (page 67).
3. Remove the enclosure from the rack as described in "Removing the system enclosure from the rack" (page 75).
4. Remove the top back panel by pressing the panel release button and lifting the latch to slide the top back panel off.
5. Remove all modules from the back of the enclosure.

NOTE: Make a note of all module locations so they can be placed back into their original locations.

6. Open the release handle (1, Figure 59 (page 78)), and pull up to remove the server interposer board (2, Figure 59 (page 78)).

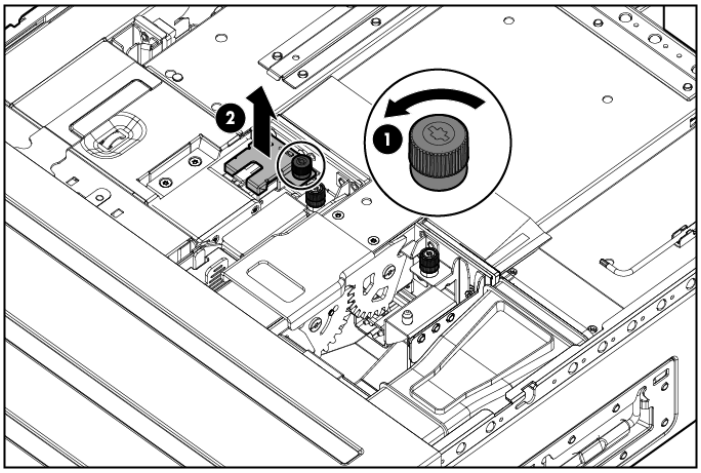
NOTE: This step may require significant force to accomplish.

Figure 59 Removing the server interposer board



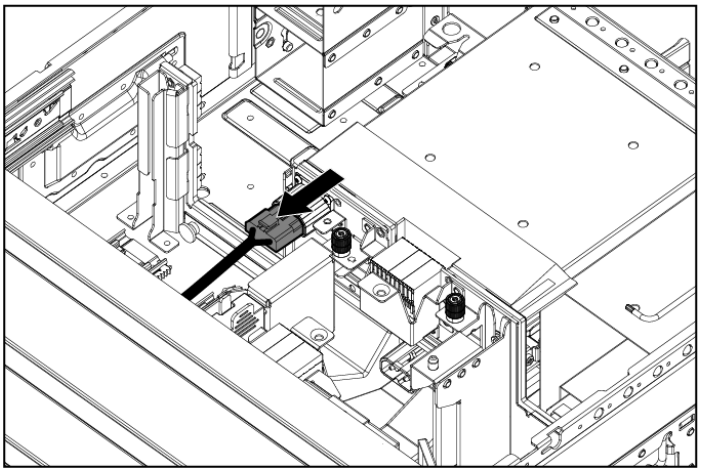
7. Remove the plug bracket (2, Figure 60 (page 78)) from the coil power plug by removing the thumbscrew (1).

Figure 60 Removing the plug bracket from the coil power plug



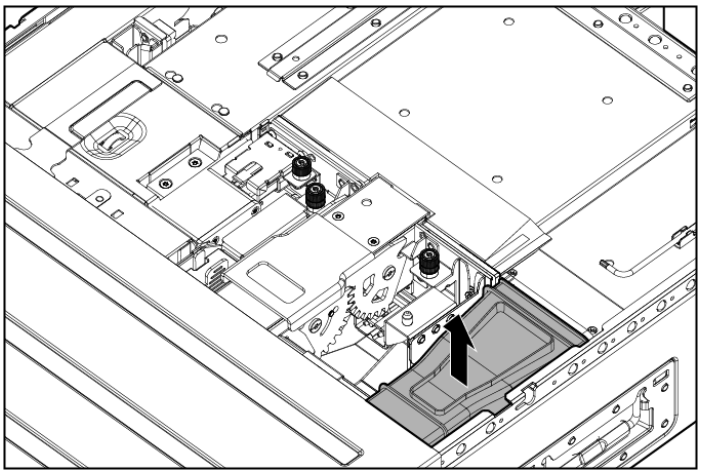
8. Unplug the coil power assembly from the midplane board (Figure 61 (page 79)).

Figure 61 Unplugging the coil power assembly



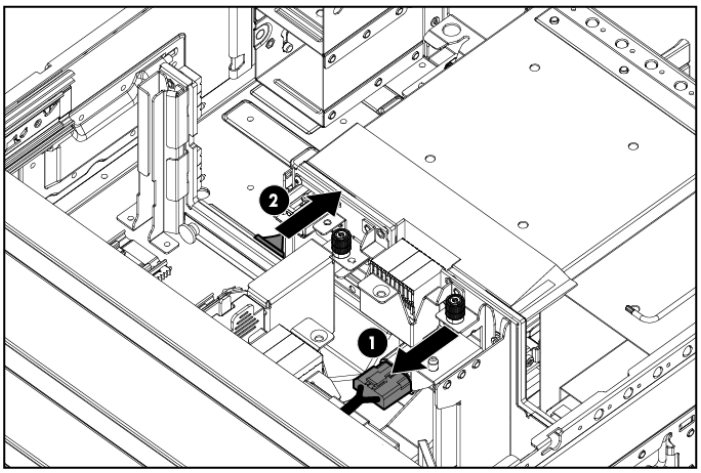
9. Extend the server blades.
10. Remove the server blade airflow baffle from inside the enclosure (Figure 62 (page 79)).

Figure 62 Removing the server blade airflow baffle



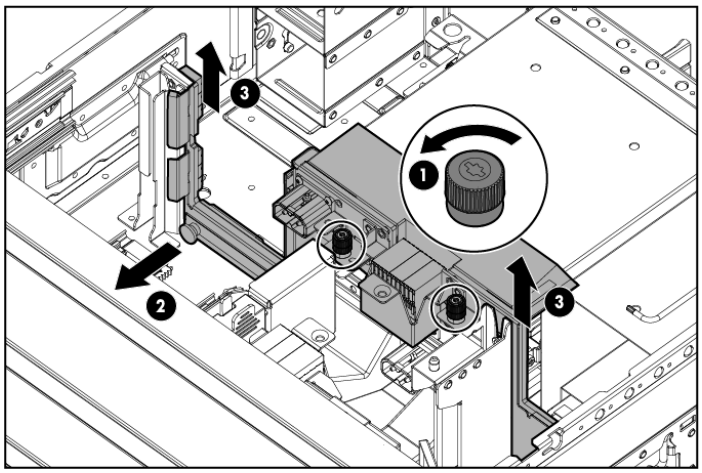
11. Unplug the power cable from the server blade midplane (1, Figure 63 (page 79)), and then unplug the rear UID PCA from the midplane board (2).

Figure 63 Unplugging the power cable and the UID PCA



12. Complete the following (Figure 64 (page 80)):
    a. Loosen the two thumbscrews holding midplane board in place (1).
    b. Pull the captive locking pin out of the midplane board (2).
    c. Lift the midplane board out of the enclosure (3).

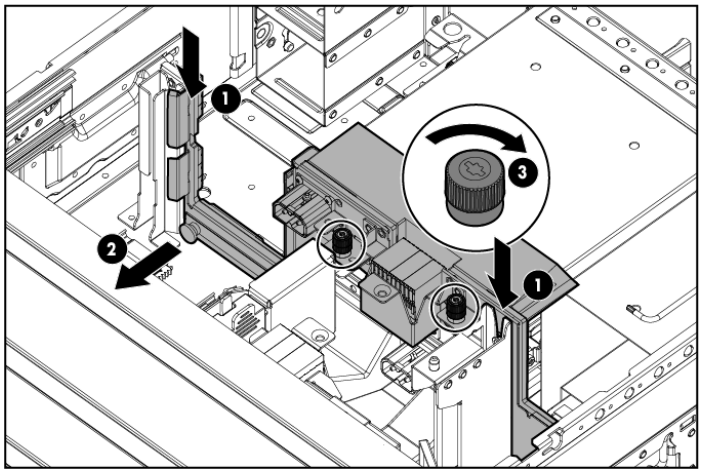
Figure 64 Removing the midplane board



Replacing the midplane board

1. On the replacement midplane board, pull out the captive locking pin as you lower the board into the enclosure (1, Figure 65 (page 80)).
2. To complete the installation of the replacement midplane board:
    a. Push the captive locking pin into the midplane board (2).
    b. Tighten the two thumbscrews holding the midplane board in place (3).

Figure 65 Installing the midplane board



3. Plug the rear UID PCA into the midplane board.
4. Plug the power cable into the server blade midplane.
5. Partially insert the drive drawer.
6. Plug the coil power plug into the midplane board.
7. Reattach the coil power plug bracket.
8. Reinsert the server blade airflow baffles.
9. Reinstall the server interposer board, see "Replacing the server interposer board" (page 77).
10. Push the hard drive drawer back into the enclosure.

11. Replace the top back panel.
12. Reinsert all rear components in the enclosure.
13. Replace the enclosure in the rack as described in "Inserting the system enclosure into the rack" (page 76).

Removing and replacing a SAS cable

CAUTION: Remove only one cable at a time to prevent downtime.

IMPORTANT: Check the QuickSpecs for the device before you purchase and connect SAS cables to ensure that the cables do not exceed the maximum supported length. Only specific cable lengths were tested and approved for use with external expansion disk enclosures.

Ensure that cabling in the back of the rack system does not interfere with system operation or maintenance. Bind cables loosely with cable ties and route the excess out of the way, along the side of the rack. When cables are tied together and routed down the side of the rack, system components and indicators are easily visible and accessible.

Removing a SAS cable

Remove the SAS cable that connects the system SAS I/O module to the expansion disk enclosure.

Replacing a SAS cable

1. Connect the SAS cable between the system SAS I/O module and the expansion disk enclosure.
2. Verify that the replacement SAS cable is working properly by checking the associated LED status on the SAS I/O module.
3. Confirm that the system has resumed normal operations.

Removing and replacing the SAS I/O module

Removing the SAS I/O module

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Label the cables so they can be returned to their original locations.
3. Unplug all cables from the SAS I/O module.

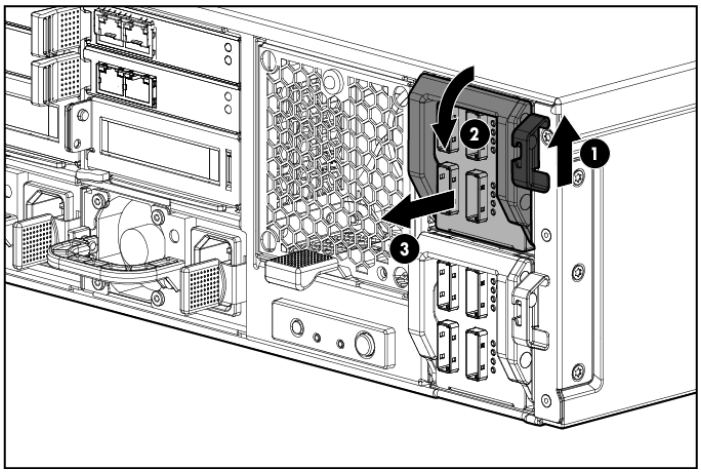
IMPORTANT: The SAS I/O cables must be installed in the same slots from which they are removed or the system might fail.

4. Pull up on the SAS I/O module release button (1, Figure 66 (page 82)).

5. Push down on the SAS I/O module lever (2, Figure 66 (page 82)), and then remove the failed SAS I/O module (3, Figure 66 (page 82)).

NOTE: You may need to use significant force to accomplish this task.

Figure 66 Removing the SAS I/O module

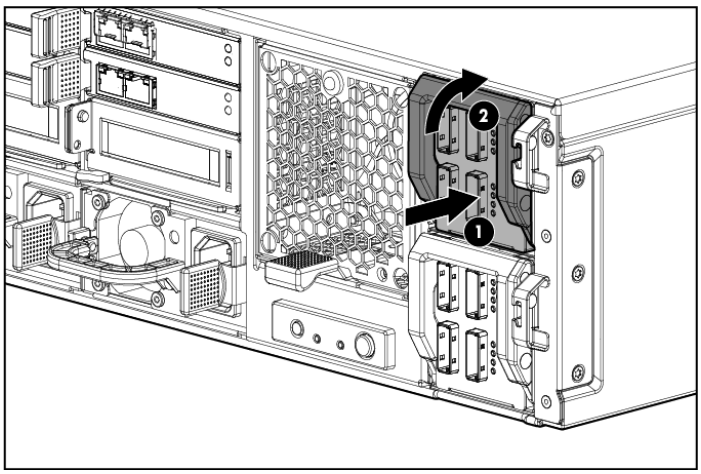


Replacing the SAS I/O module

1. To install the replacement SAS I/O module (Figure 67 (page 82)):
   a. Insert the SAS I/O module into the enclosure (1).
   b. Push up on the SAS I/O module lever (2) until it locks into place.

NOTE: You may need to use significant force to accomplish this task.

Figure 67 Replacing the SAS I/O module



2. Plug in all cables to the SAS I/O module.

IMPORTANT: You must install the SAS I/O cables in the same slots from which they were removed or the system might fail.

3. Verify that the replacement SAS I/O module is working properly by checking the overall module status LED ("SAS I/O module LEDs status" (page 54)).

NOTE: The green overall module status LED should turn on within five seconds after the new module is inserted in the system, which reflects the necessary time to boot the firmware.

4. Confirm the firmware version.
5. Confirm that the system has resumed normal operations.

Removing and replacing the fan module

There are two fan modules: one server fan module, which cools the server half of the enclosure, and one hard drive fan module, which cools the drive half of the enclosure. The two fan modules are not redundant for each other.

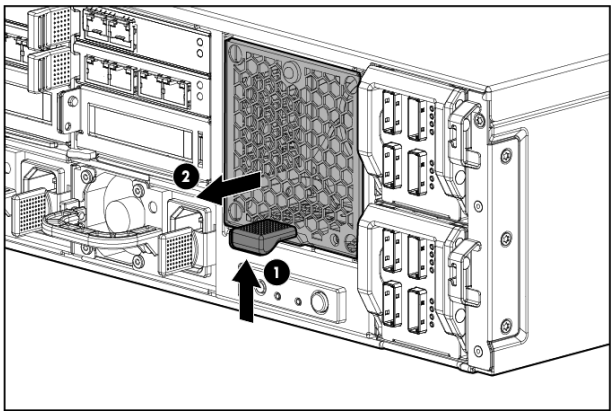
△ **CAUTION: You must replace the server fan module within three minutes or a thermal shutdown of the system may occur.** The total time allowance is three minutes for replacing the fan module, which includes the removal of the original server fan module and installation of the replacement fan.

Removing a fan module significantly changes the air flow within the enclosure. Both fan modules must be installed for the enclosure to cool properly. The fan modules are not redundant to each other, and each module cools a different half of the enclosure. If a single fan module fails, leave it in place in the enclosure until a new fan is available to install. The fan modules have some built-in redundancy to keep operating until a replacement can be made. The remaining fan module speeds up and allows operation for a limited time, based on operating and environmental conditions. If a temperature threshold is exceeded, the enclosure automatically shuts down.

Removing the fan module

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Press up on the drive fan module release lever (1, Figure 68 (page 83)) and remove the fan module (2).

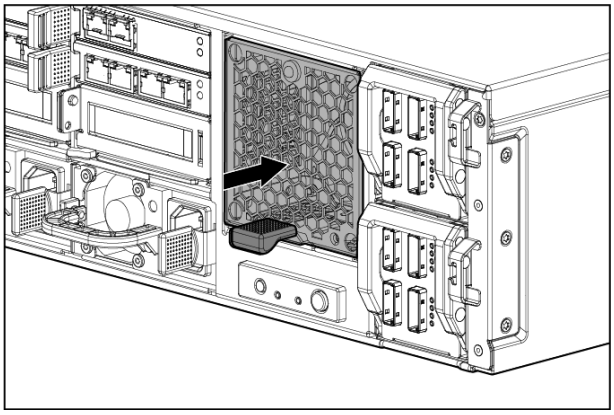
Figure 68 Removing the fan module



Replacing the fan module

1. Insert the replacement fan module (Figure 69 (page 84)).

Figure 69 Replacing the fan module



2. Verify that the replacement component is working properly by checking the associated LED status.

NOTE: It should take approximately 15 seconds for the LED status to appear.

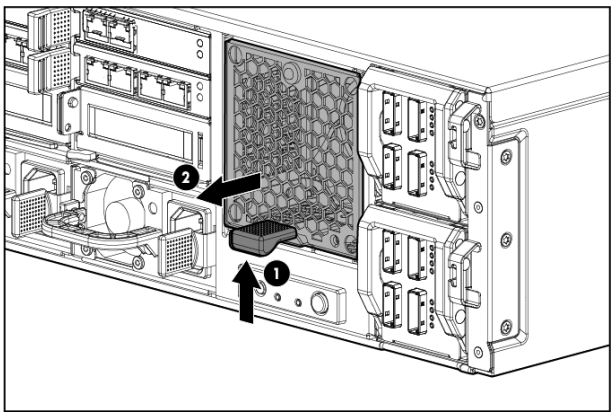
3. Confirm that the system has resumed normal operations.

Removing and replacing the power UID button assembly

Removing the power UID button assembly

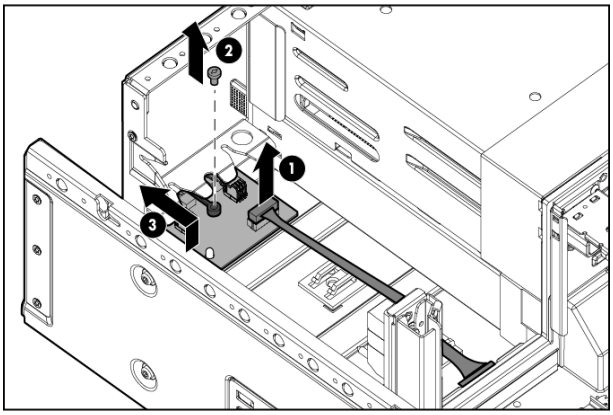
1. Power off the system as described in "Powering the system off and on" (page 67).
2. Remove the enclosure from the rack as described in "Removing the system enclosure from the rack" (page 75).
3. Remove the top back panel by pressing the panel release button and lifting the latch to slide the top back panel off.
4. Remove the hard drive fan module (Figure 70 (page 84)).

Figure 70 Removing the fan module



5. Complete the following (Figure 71 (page 85)):
   a. Unplug the cable from the power UID button assembly (1).
   b. Remove the screw from the power UID button assembly (2).
   c. Remove the faulty power UID button assembly (3).

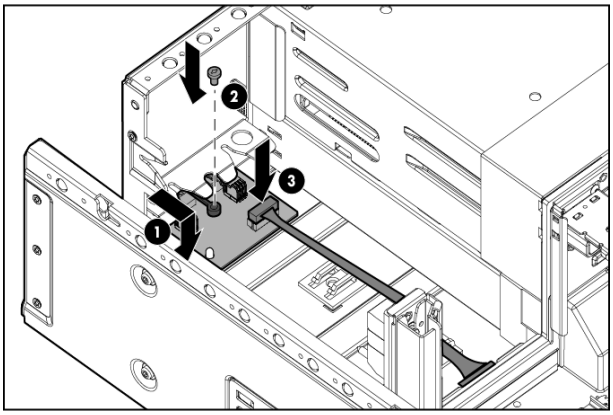
Figure 71 Removing the power UID button assembly



Replacing the power UID button assembly

1. Complete the following (Figure 72 (page 85)):
   a. Insert the replacement power UID button assembly (1).
   b. Replace the screw in the power UID button assembly (2).
   c. Plug the cable into the power UID button assembly (3).

Figure 72 Replacing the power UID button assembly



2. Push the hard drive drawer back in the system enclosure.
3. Replace the hard drive fan module.
4. Replace the top back panel.
5. Replace the enclosure as described in "Inserting the system enclosure into the rack" (page 76).

Removing and replacing the power supply

Removing the power supply

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Remove the power cord from the power supply.
3. Press the power supply release lever to the left.
4. Remove the failed power supply.

Replacing the power supply

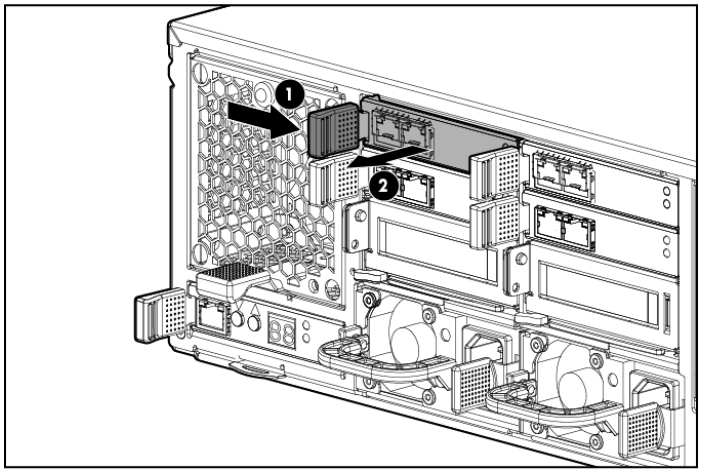
1. Insert the replacement power supply.
2. Plug the power cord into the power supply.
3. Verify that the replacement component is working properly by checking the associated LED status.
4. Confirm that the system has resumed normal operations.

Removing and replacing the HP Ethernet I/O module

Removing the HP Ethernet I/O module

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Label the cables, and then unplug all cables from the HP Ethernet I/O module.
3. Press the module release mechanism to the right (1, Figure 73 (page 86)), and then remove the failed module (2).

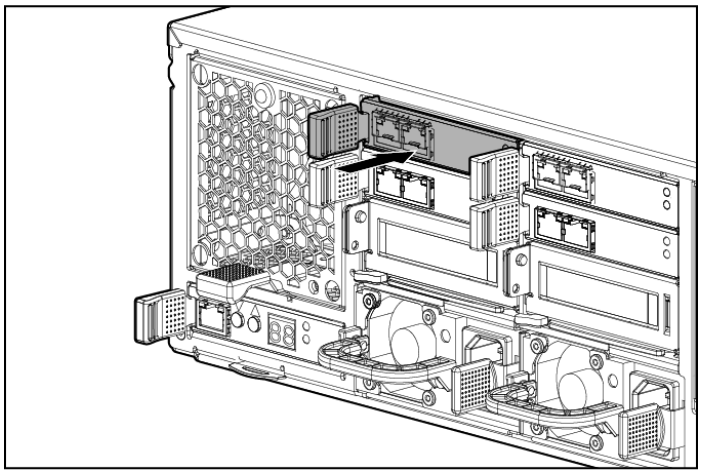
Figure 73 Removing the HP Ethernet I/O module



Replacing the HP Ethernet I/O module

1. Insert the replacement HP Ethernet I/O module (Figure 74 (page 86)).

Figure 74 Replacing the HP Ethernet I/O module



2. Plug in all cables to the replacement module to their original locations.

3. Verify that the replacement component is working properly by checking the associated LED status.

NOTE: It should take approximately 15 seconds for the LED status to display.

4. Confirm the firmware version.
5. Confirm that the system has resumed normal operations.

Removing and replacing the PCIe module (with card)

Removing the PCIe module

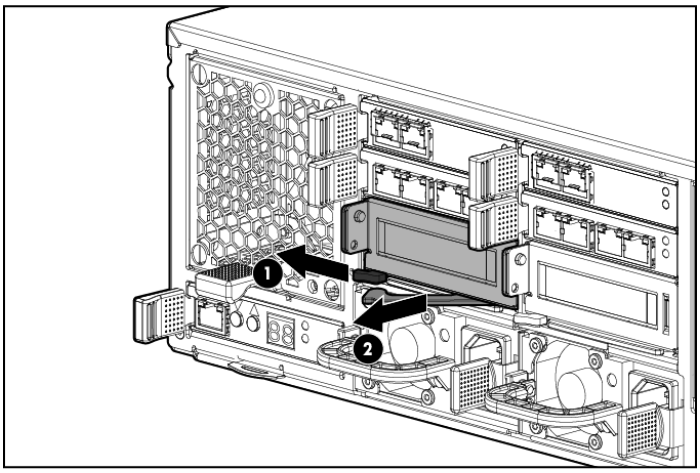
1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Use the System Manager to identify which server needs to have the PCIe module removed. If it is for both servers, then perform this operation for one server, then the other server, so that both servers are not turned off at the same time.
3. Power off the appropriate server blade associated with the PCIe module that is being removed.

   Server 1 is the top server, and the PCIe module is on the left when looking from the back. Server 2 is the bottom server, and the PCIe module is on the right when looking from the back.

CAUTION: Be sure to power off the server **before** removing the PCIe module.

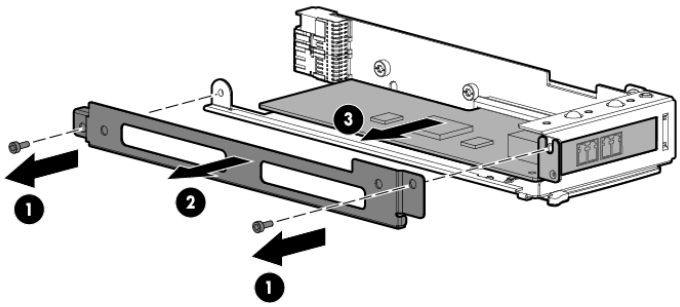
4. Label the cables so they can be returned to their original locations.
5. Unplug all cables from the PCIe module.
6. Press the PCIe module release mechanism to release the handle (1, Figure 75 (page 87)), and then pull the handle to remove the PCIe module from the system (2).

Figure 75 Removing the PCIe module



7. Complete the following (Figure 76 (page 88)):
   a. Remove the two screws from the bracket of the failed PCIe module (1).
   b. Remove the bracket (2).
   c. Remove the PCIe card from the failed module (3).

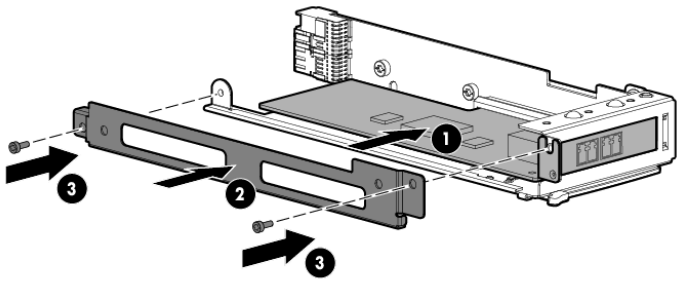
Figure 76 Removing the PCIe card



Replacing the PCIe module

1. Install the PCIe card in the replacement module (1, Figure 77 (page 88)), replace the bracket (2), and then reinsert the two screws into the bracket of the replacement module (3).

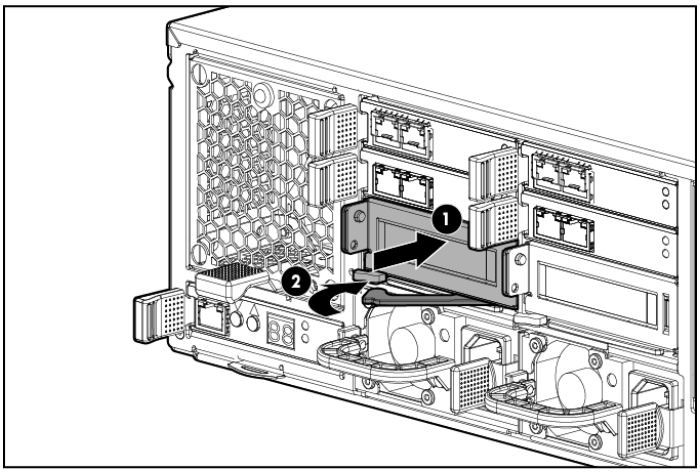
Figure 77 Installing the PCIe card



2. Insert the replacement PCIe module into the system (1, Figure 78 (page 89)), and lock the release lever (2).

NOTE: The PCIe module should be inserted with the lever in the open position.

Figure 78 Installing the PCIe module



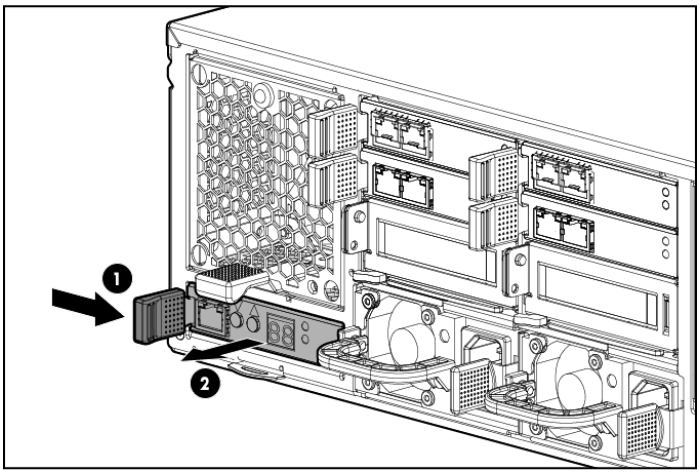
3. Plug in all cables to the PCIe module in their original locations.
4. Power on the server blade by pressing the power button **ON**.
5. Verify that the replacement component is working properly by checking the associated LED status.
6. Confirm that the system has resumed normal operations.

Removing and replacing the EMU module

Removing the EMU module

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Unplug any cables from the EMU module.
3. Press the EMU module release lever to the right (1, Figure 79 (page 89)), and then remove the EMU module (2).

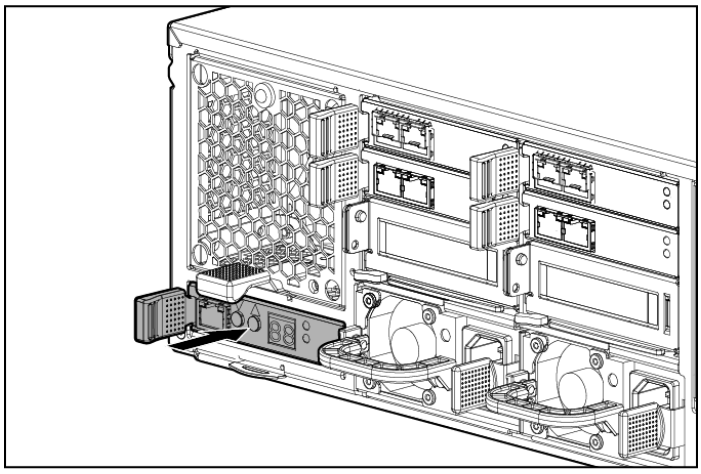
Figure 79 Removing the EMU



Replacing the EMU module

1. Insert the replacement EMU module and ensure the release lever locks in place (Figure 80 (page 90)).

Figure 80 Installing the EMU



2. Plug the cables back into the EMU module.
3. Verify that the new component is working properly by checking the associated LED status.
4. Confirm the firmware version.
5. Obtain an IP address.

IMPORTANT: Some of the configuration information is automatically repopulated, but you must reconfigure the network settings and password.

6. Confirm that the system has resumed normal operations.

NOTE: This may take approximately one minute, or the time it takes for the Enclosure Manager to boot.

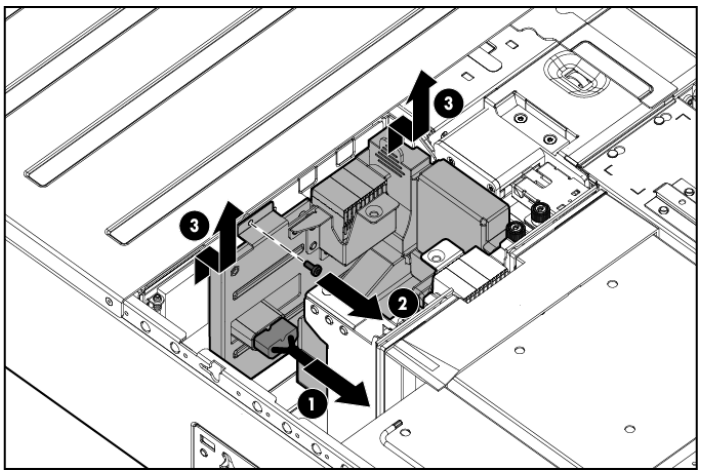
Removing and replacing the server blade backplane

Removing the server blade backplane

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Power off the system as described in "Powering the system off and on" (page 67).
3. Remove the enclosure from the rack as described in "Removing the system enclosure from the rack" (page 75).
4. Remove the top back panel by pressing the panel release button and lifting the latch to slide the top back panel off.
5. Remove the midplane board as described in "Removing the midplane board" (page 78).
6. Remove the small baffle from beside the server blade backplane by pinching the tabs and lifting the small baffle out of the enclosure.
7. Remove the large baffle from the bottom of the enclosure.

8. Complete the following (Figure 81 (page 91)):
   a. Unplug the power cable from the server blade backplane by pinching the plug release mechanism (1).
   b. Remove the screw (2).
   c. Remove the server blade backplane from the enclosure (3).

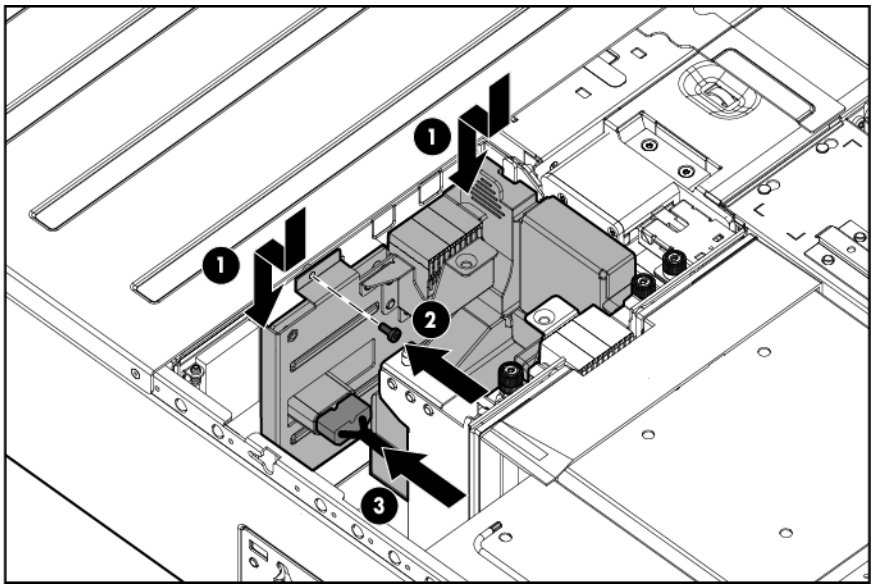
Figure 81 Removing the server blade backplane



Replacing the server blade backplane

1. Complete the following (Figure 82 (page 91)):
   a. Install the replacement server blade backplane (1).
   b. Replace the screw (2).
   c. Plug in the power cable (3).

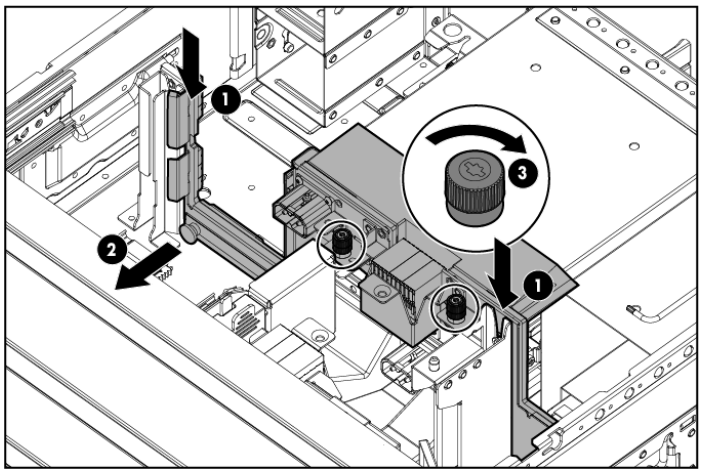
Figure 82 Installing the server blade backplane



2. Replace the large baffle on the bottom of the enclosure.
3. Replace the small baffle beside the server blade backplane.

4. Replace the midplane board (Figure 83 (page 92)):
   a. Pull out the captive locking pin as you lower the board into the enclosure (1).
   b. Push the captive locking pin into the midplane board (2).
   c. Tighten the two thumbscrews holding the midplane board in place (3).

Figure 83 Installing the midplane board



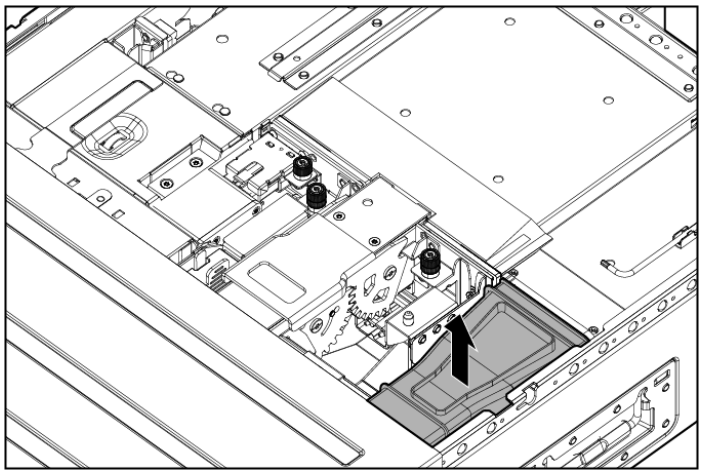
5. Plug the rear UID PCA into the midplane board.
6. Replace the midplane board as described in "Replacing the midplane board" (page 80).

Removing and replacing the server airflow baffle

Removing the server airflow baffle

1. Power off the system as described in "Powering the system off and on" (page 67).
2. Remove the enclosure from the rack as described in "Removing the system enclosure from the rack" (page 75).
3. Remove the top back panel by pressing the release button and lifting the latch to slide the top back panel off.
4. Remove the server blade airflow baffle from inside the enclosure (Figure 84 (page 92)).

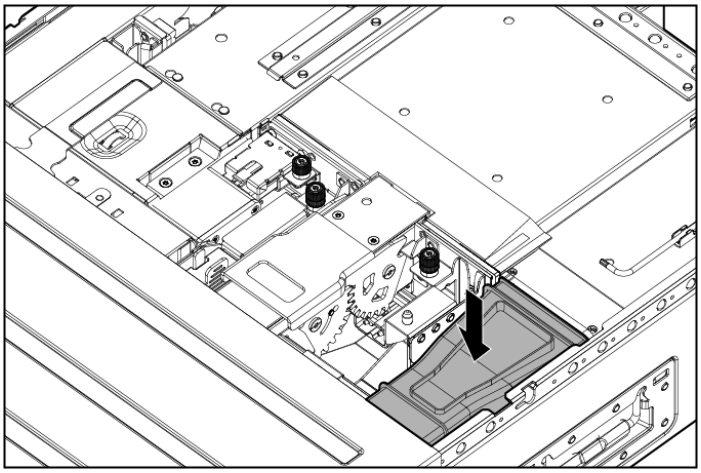
Figure 84 Removing the server blade airflow baffle



Replacing the server airflow baffle

1. Install the replacement server blade airflow baffle (Figure 85 (page 93)).

Figure 85 Installing the server blade airflow baffle



2. Reinstall the top back panel.
3. Replace the enclosure as described in "Inserting the system enclosure into the rack" (page 76).

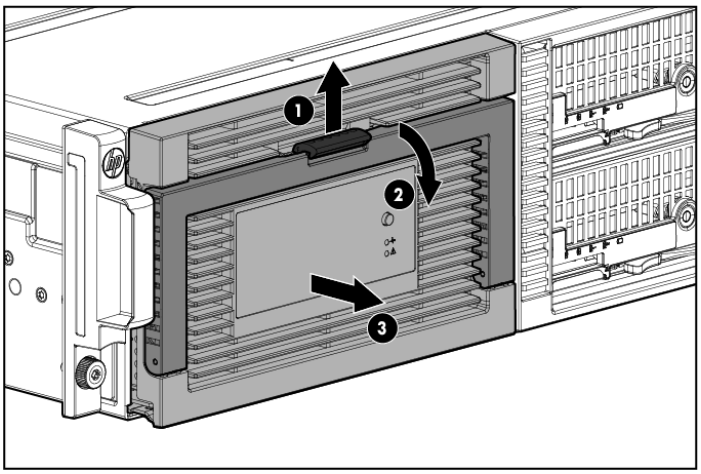
Removing and replacing the front bezel (standard)

NOTE: Use "Removing and replacing the front bezel (full)" (page 95) if you are not able to reach all of the screws due to the position of the system in the rack.

Removing the front bezel

1. Power off the system as described in "Powering the system off and on" (page 67).
2. Extend the hard drive drawer (Figure 86 (page 93)):
   a. Press upward on the release button on the hard drive drawer (1).
   b. Pull the drawer handle down 90 degrees (2).
   c. Extend the hard drive drawer (3).

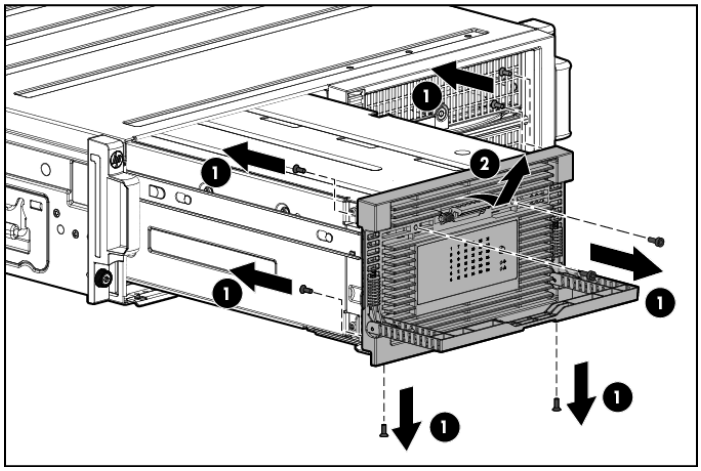
Figure 86 Extending the hard drive drawer



3. Remove all eight screws from the front bezel (1, Figure 87 (page 94)), and then lift the front bezel up and out to remove the front bezel (2).

NOTE: There are two screws on the bottom, four screws on the sides (two on each side), and two screws hidden behind the handle.

Figure 87 Removing the front bezel

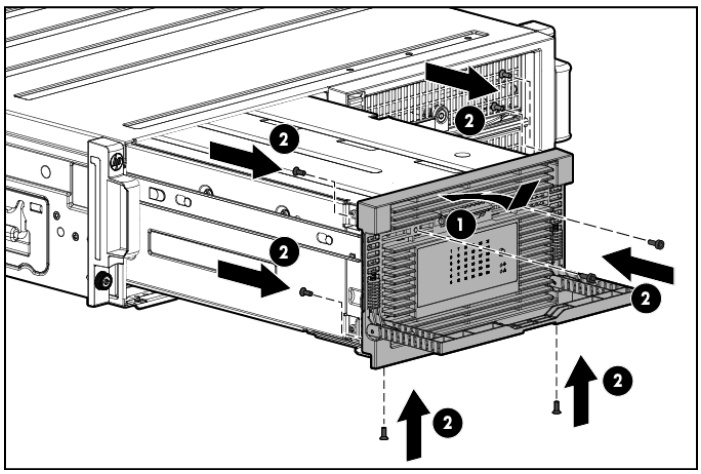


Replacing the front bezel

1. Install the replacement front bezel with the handle at a 90 degree angle making sure the bottom pins are aligned with the bottom holes (1, Figure 88 (page 94)), and replace the screws into the front bezel (2).

NOTE: There are two screws on the bottom, four screws on the sides (two on each side), and two screws hidden behind the handle.

Figure 88 Replacing the front bezel



2. Push the drive drawer back into the system enclosure.
3. Power on the system by pressing the power button **ON**.
4. Verify that the replacement component is working properly by checking the associated LED status.
5. Confirm that the system has resumed normal operations.

Removing and replacing the front bezel (full)

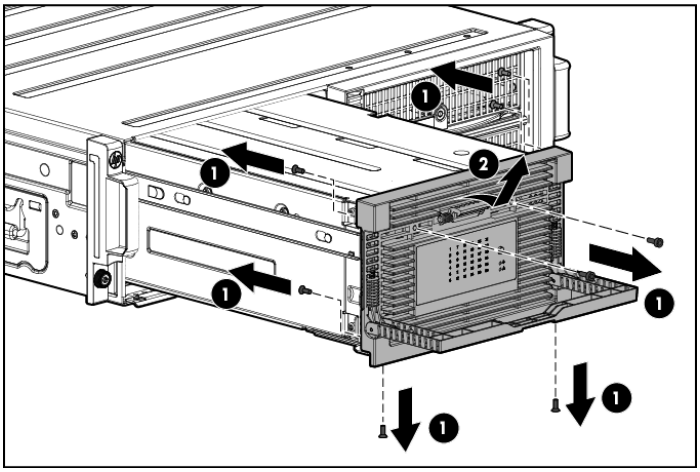
NOTE: This full procedure is only required if all screws are not accessible due to the position of the system in the rack.

Removing the front bezel (full)

1. Power off the system as described in "Powering the system off and on" (page 67).
2. Remove the enclosure from the rack as described in "Removing the system enclosure from the rack" (page 75).
3. Pull the hard drive handle down 90 degrees, and slide out the hard drive drawer.
4. Remove all eight screws from the front bezel and pull the handle down 90 degrees (1, Figure 89 (page 95)). Then lift the front bezel up and out to remove the front bezel (2).

NOTE: There are two screws on the bottom, four screws on the sides (two on each side), and two screws hidden behind the handle.

Figure 89 Removing the front bezel

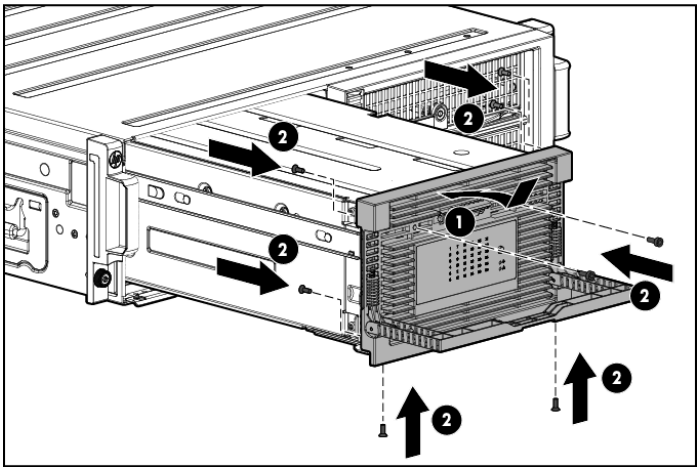


Replacing the front bezel (full)

1. Install the replacement front bezel with the handle at a 90 degree angle, making sure the bottom pins are aligned with the bottom holes (1, Figure 90 (page 96)), and replace the screws in the front bezel (2).

NOTE: There are two screws on the bottom, four screws on the sides (two on each side), and two screws hidden behind the handle.

Figure 90 Replacing the front bezel



2. Close the drive handle.
3. Push the drive drawer back into the system enclosure.
4. Replace the enclosure as described in "Inserting the system enclosure into the rack" (page 76).

Removing and replacing the front LED display board in the rack (standard)

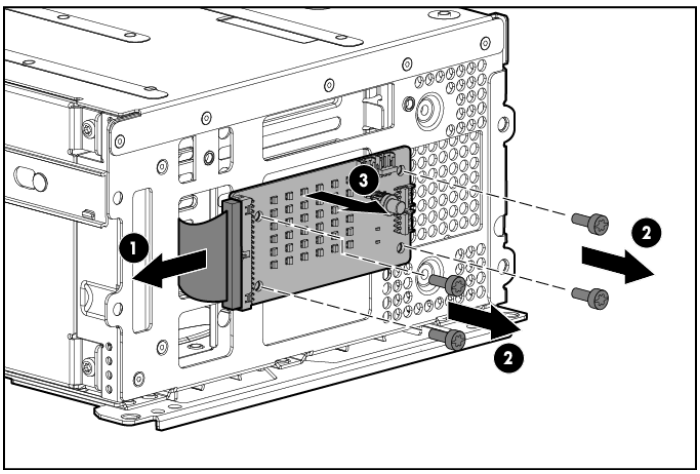
NOTE: If you are not able to access all of the screws due to the enclosure position in the rack, use the full procedure instructions.

Removing the front LED display board in the rack

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Power off the system as described in "Powering the system off and on" (page 67).
3. Remove the front bezel as described in "Replacing the front bezel" (page 94).

4. Complete the following (Figure 91 (page 97)):
   a. Disconnect the LED display board from the drive backplane by pinching the ends of the LED display board cable together (1).
   b. Remove the four screws from the LED display board (2).
   c. Remove the LED display board from the drive drawer (3).

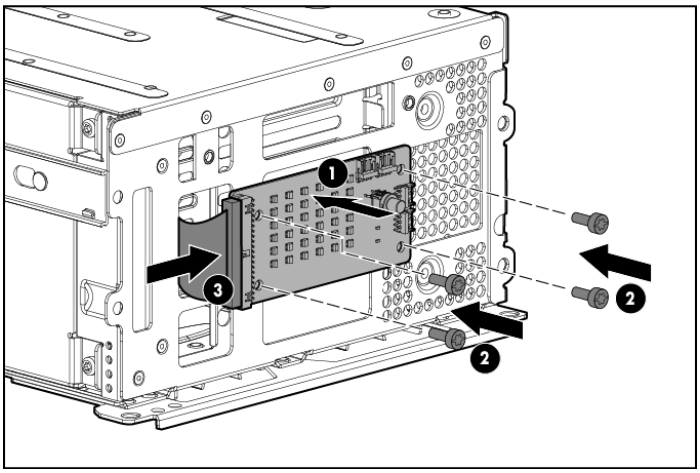
Figure 91 Removing the front LED display board



Replacing the front LED display board in the rack

1. Complete the following (Figure 92 (page 97)):
   a. Install the replacement LED display board (1).
   b. Replace the four LED display board screws (2).
   c. Reconnect the LED display board to the drive drawer (3).

Figure 92 Installing the front LED display board



2. Replace the front bezel as described in "Replacing the front bezel" (page 94).

Removing and replacing the front LED display board (full)

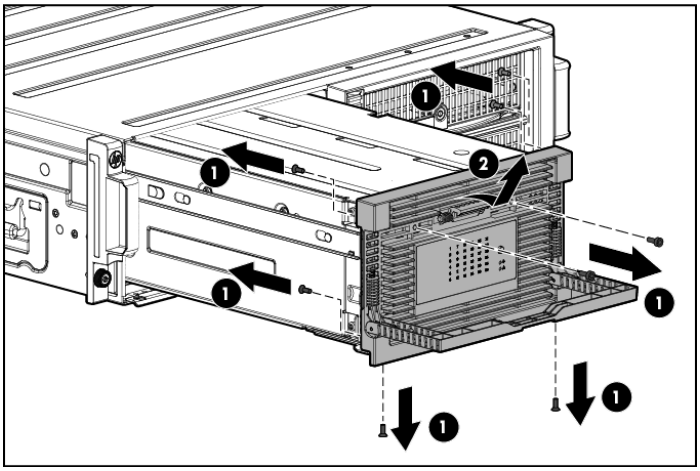
Removing the front LED display board (full)

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Power off the system as described in "Powering the system off and on" (page 67).
3. Remove the enclosure as described in "Removing the system enclosure from the rack" (page 75).

4. Pull the hard drive drawer handle down 90 degrees, and slide out the hard drive drawer.
5. Remove all eight screws from front bezel (1, Figure 93 (page 98)). Then, lift the front bezel up and out to remove the front bezel (2).

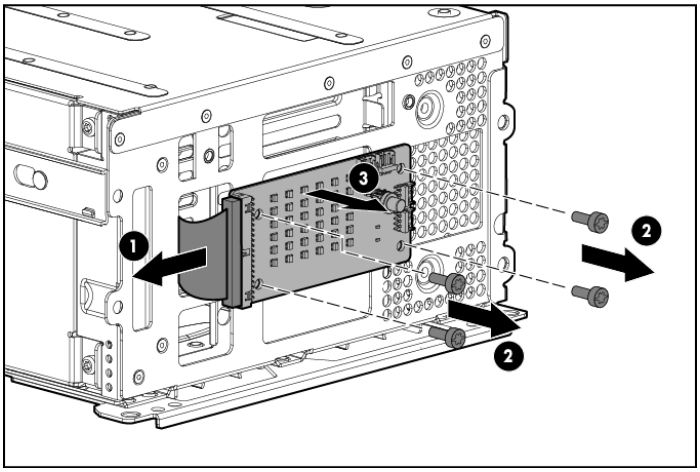
NOTE: There are two screws on the bottom, four screws on the sides (two on each side), and two screws hidden behind the handle.

Figure 93 Removing the front bezel



6. Complete the following (Figure 94 (page 98)):
   a. Disconnect the LED display board from the drive backplane by pinching the ends of the LED display board cable together (1).
   b. Remove the four screws from the LED display board (2).
   c. Remove the LED display board from the drive drawer (3).

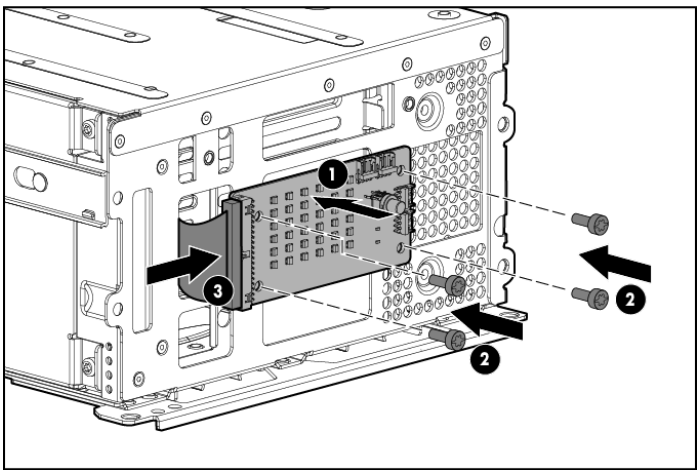
Figure 94 Removing the front LED display board



Replacing the front LED display board (full)

1. Complete the following (Figure 95 (page 99)):
   a. Install the replacement LED display board (1).
   b. Replace the four LED display board screws (2).
   c. Reconnect the LED display board to the drive drawer (3).

Figure 95 Installing the front LED display board



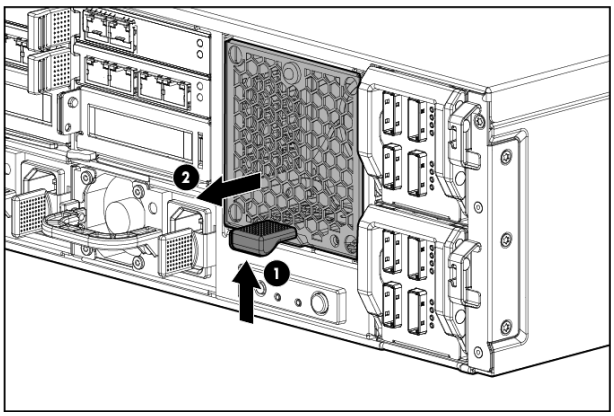
2. Replace the front bezel as described in "Replacing the front bezel (full)" (page 96).

Removing and replacing a drive drawer

Removing the drive drawer

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Power off the system as described in "Powering the system off and on" (page 67).
3. Remove the enclosure as described in "Removing the system enclosure from the rack" (page 75).
4. Remove the top back panel by pressing the panel release button and lifting the latch to slide the top back panel off.
5. Remove the hard drive fan module (Figure 96 (page 99)).

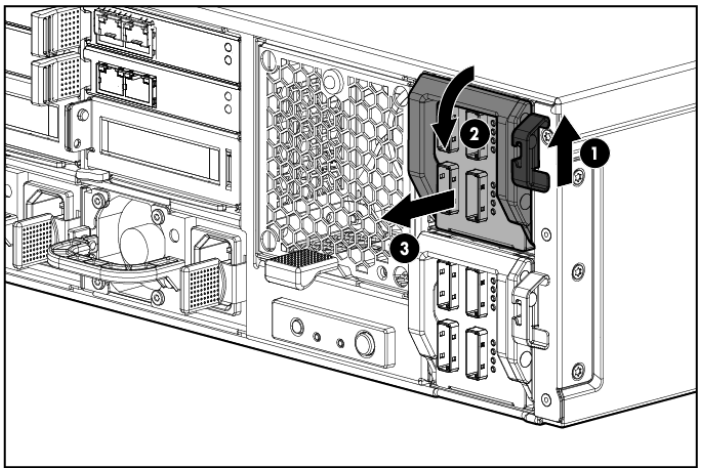
Figure 96 Removing the fan module



6. Push up on the SAS I/O module release button (1, Figure 97 (page 100)).
7. Push down on the SAS I/O module lever (2, Figure 97 (page 100)), and then remove the SAS I/O module (3).

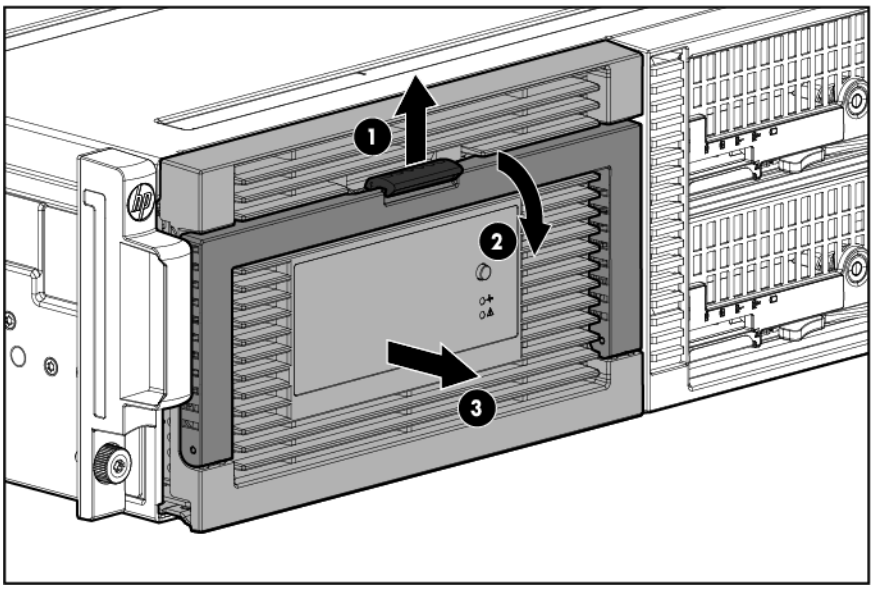
NOTE: This step may require significant force to accomplish.

Figure 97 Removing the SAS I/O module



8. Extend the drive drawer (Figure 54 (page 75)):
   a. Press upward on the release button on the hard drive drawer (1).
   b. Pull the drawer handle down 90 degrees (2).
   c. Extend the hard drive drawer (3).

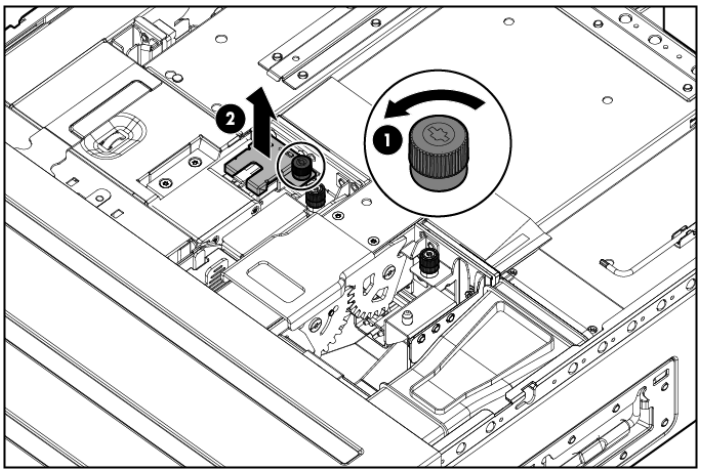
Figure 98 Extending the hard drive drawer



NOTE: You must repeat Step 8 for the remaining SAS I/O module.

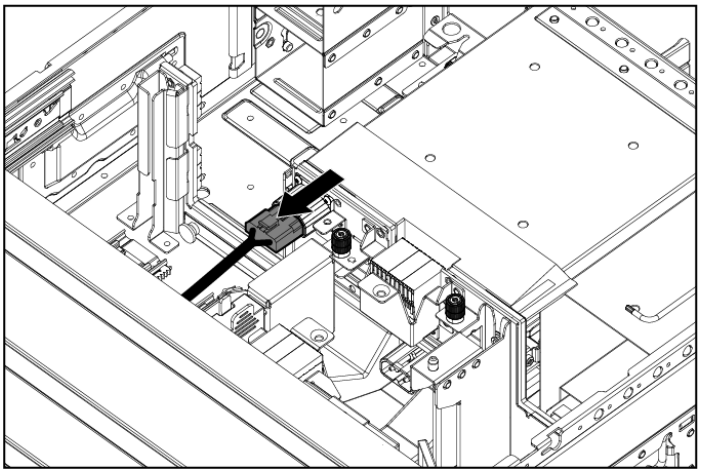
9. Remove the plug bracket (2, Figure 99 (page 101)) from the coil power plug by removing the thumbscrew (1).

Figure 99 Removing the plug bracket from the coil power plug



10. Unplug the coil power assembly from the midplane board (Figure 100 (page 101)).

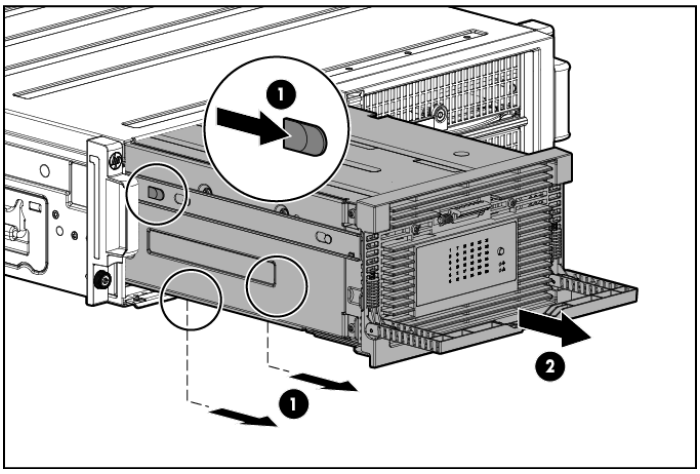
Figure 100 Unplugging the coil power assembly



11. Press the release mechanism on the side rail (1, Figure 101 (page 101)), and then pull the hard drive drawer fully out of the enclosure (2).

WARNING! The hard drive drawer is heavy, even after removing the hard drives. Make sure the drawer is fully supported as you remove it from the enclosure.

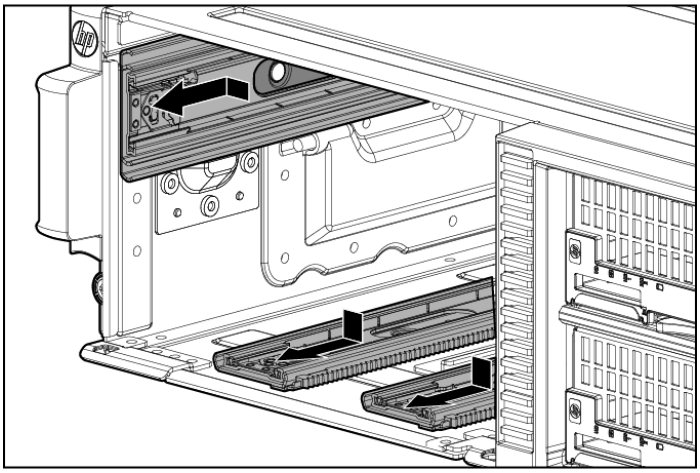
Figure 101 Removing the drive drawer



Replacing the drive drawer

1. Unlock the side enclosure rail and push it into the back enclosure (Figure 102 (page 102)).
2. Align the bottom replacement drive drawer rails with the bottom enclosure rails.

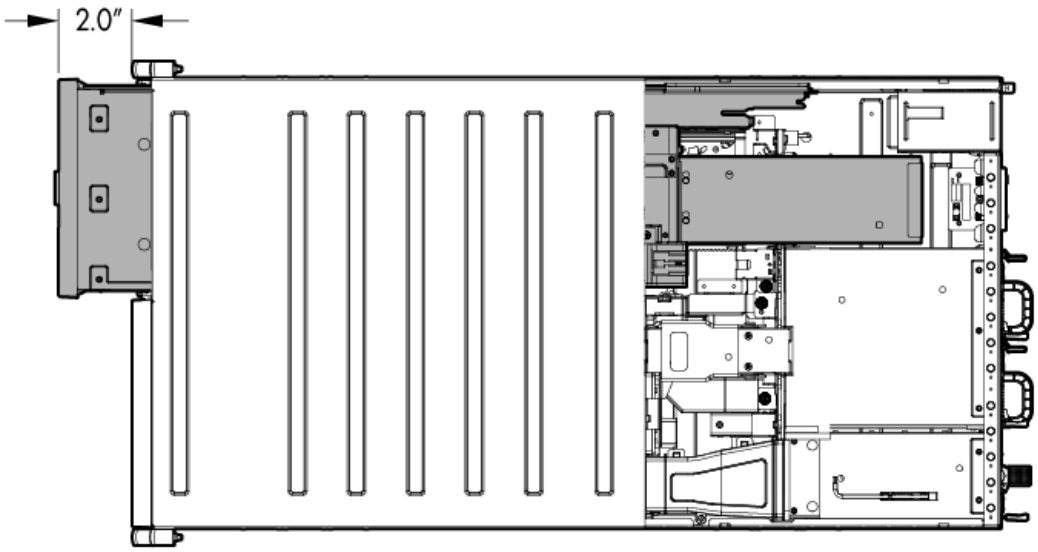
Figure 102 Unlocking the enclosure rails



3. Align the side rails and then push the replacement drive drawer partially back into the system enclosure until approximately two inches of the drawer is still out of the enclosure (Figure 103 (page 102)).

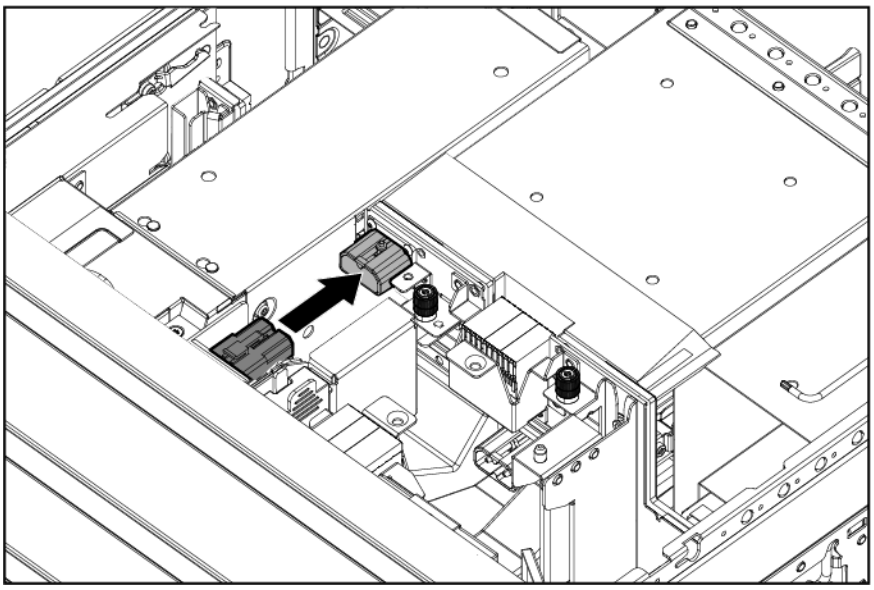
CAUTION: Do not push the drive drawer completely into the enclosure. You must first connect the power coil assembly to prevent damaging the power coil assembly.

Figure 103 Partially installing the drive drawer



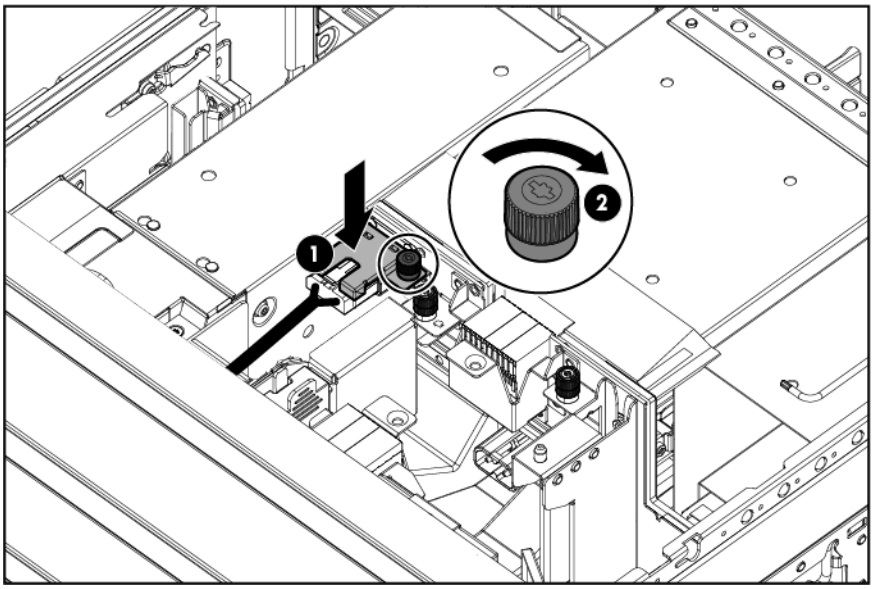
4. Pull the cable slightly out of the coil power plug and connect it to the midplane board (Figure 104 (page 103)).

Figure 104 Connecting the coil power assembly to the midplane board



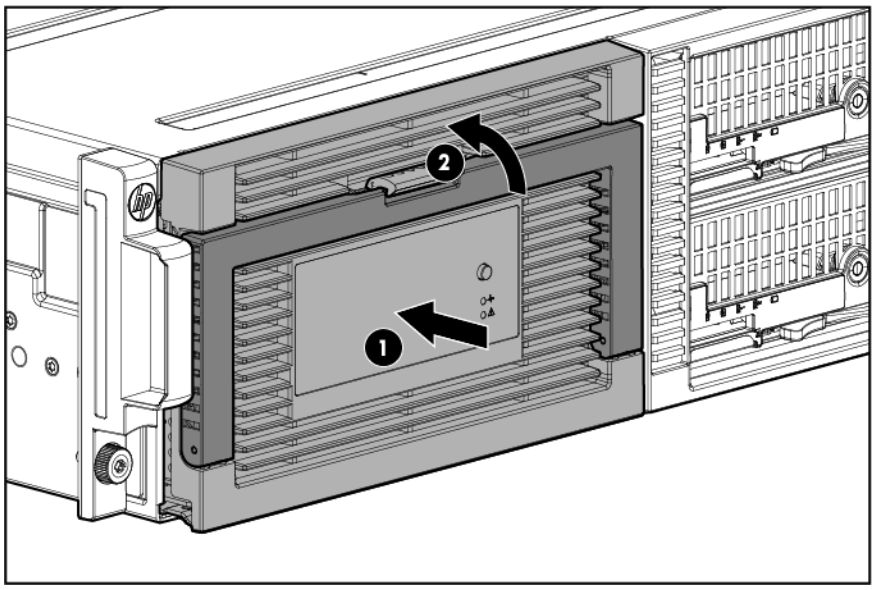
5. Reattach the plug bracket (1, Figure 105 (page 103)) to the coil power plug and tighten the thumbscrew (2).

Figure 105 Reattaching the plug bracket to the coil power plug



6. Push the drive drawer fully back into the system enclosure (1, Figure 106 (page 104)) and the handle back into place (2).

Figure 106 Pushing the drive drawer into the system enclosure



7. Replace the top back panel.
8. Replace the drive fan module.
9. Replace both SAS I/O modules.
10. Replace the enclosure as described in "Inserting the system enclosure into the rack" (page 76).

Removing and replacing the drive drawer hard drive

CAUTION:

- Do not replace the hard drive with a SATA drive. Be sure to replace the hard drive only with an approved SAS drive.
- Do not replace the drive drawer hard drive during peak data transfer times. Make sure the hard drive LED is off before you remove the hard drive.
- Ensure that the capacity of the replacement drive is at least equal to the capacity of the original drive. The capacity of the replacement drive should not be smaller.

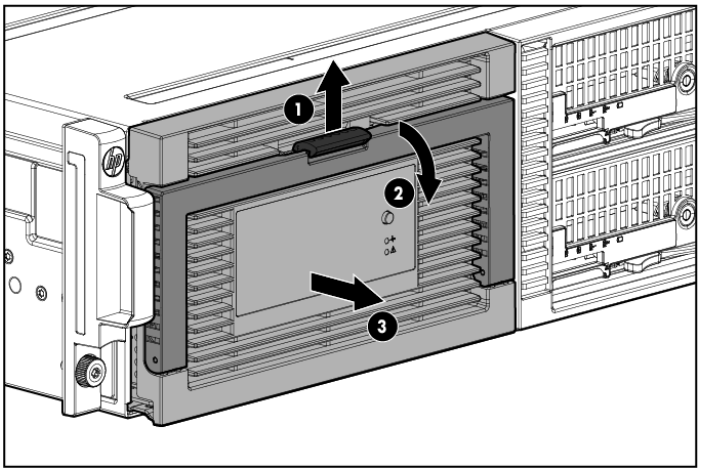
NOTE: After replacing the hard drives, the approximate wait times for viewable disk LED activity vary.

Removing the drive drawer hard drive

1. Verify the failed component as described in "Verifying component failure" (page 73).

2. Extend the hard drive drawer (Figure 107 (page 105)):
   a. Press upward on the release button on the hard drive drawer (1).
   b. Pull the drawer handle down 90 degrees (2).
   c. Extend the hard drive drawer (3).

Figure 107 Extending the hard drive drawer

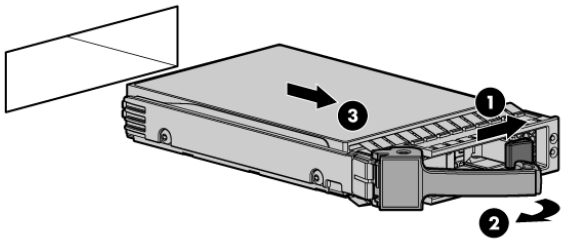


3. Locate the failed hard drive.

NOTE: Use the hard drive bay labels and the drive LED status (an amber LED or no LEDs) to help identify the failed drive.

4. To remove the failed hard drive (Figure 108 (page 105)):
   a. Press the release button (1).
   b. Pull the release lever (2).
   c. Remove the hard drive (3).

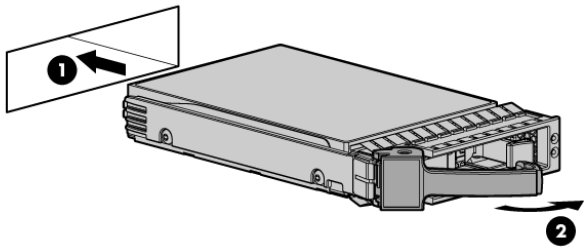
Figure 108 Remove the failed hard drive



Replacing the drive drawer hard drive

1. Install the hard drive (Figure 109 (page 106)):
   a. Insert the replacement hard drive with the lever in the open position (1).
   b. Push the release lever into place (2).

Figure 109 Installing the hard drive



2. Push the drive drawer back into the system enclosure.
3. Verify that the replacement component is working properly by checking the associated LED status.

NOTE: This may require a wait time of less than 15 seconds for the LED status to appear.

4. Confirm that the system has resumed normal operations.
5. Confirm the hard drive firmware version.

IMPORTANT: You must reboot the storage solution after updating the drive drawer hard drive firmware.

Removing and replacing the drive drawer rails (side or bottom)

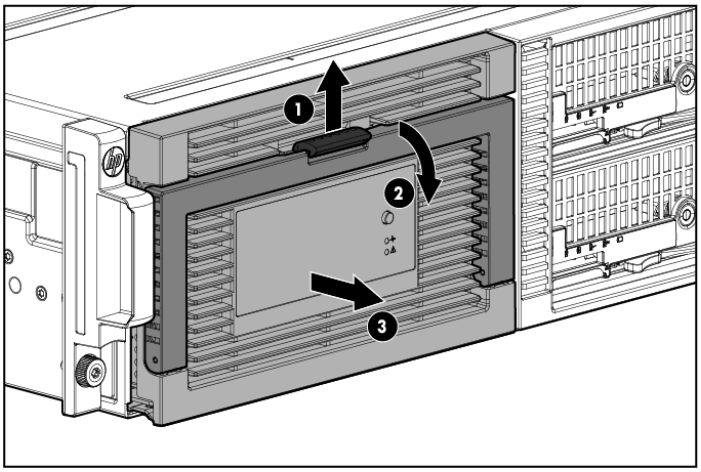
NOTE: Spare rail kits consist of rail pairs, one side rail, and two bottom drive drawer rails. See "Removing and replacing the enclosure rails" (page 111) for enclosure rail instructions.

Removing the drive drawer rails

1. Power off the system as described in "Powering the system off and on" (page 67).
2. Remove the enclosure as described in "Removing the system enclosure from the rack" (page 75).
3. Remove the top back panel by pressing the panel release button and lifting the latch to slide the top back off.

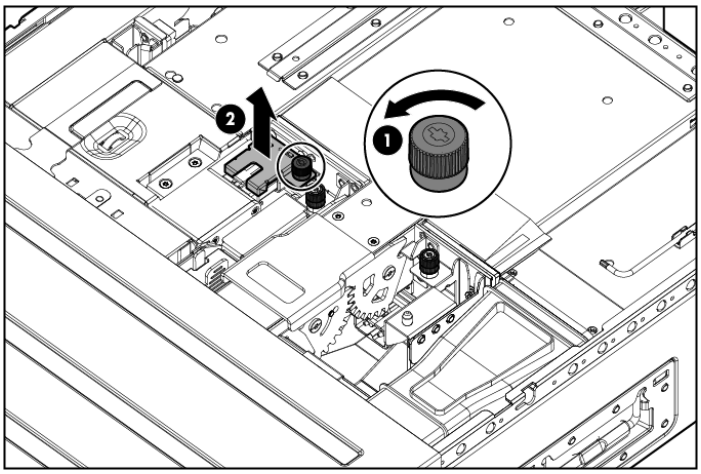
4. Extend the hard drive drawer (Figure 110 (page 107)):
   a. Press upward on the release button on the hard drive drawer (1).
   b. Pull the drawer handle down 90 degrees (2).
   c. Extend the hard drive drawer (3).

Figure 110 Extending the hard drive drawer



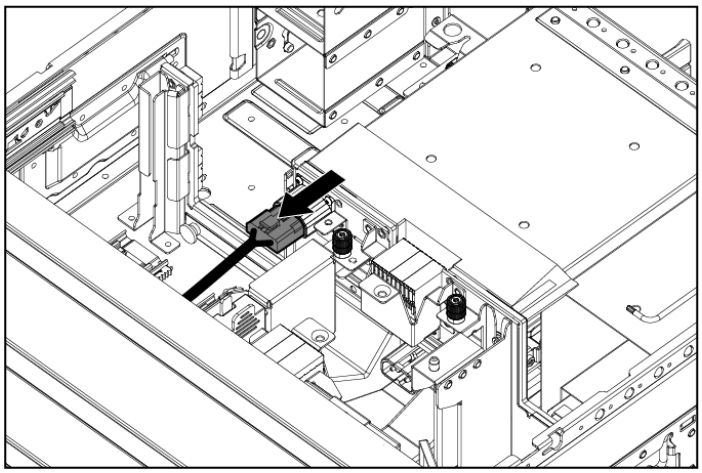
5. Remove the plug bracket (2, Figure 111 (page 107)) from the coil power plug by removing the thumbscrew (1).

Figure 111 Removing the plug bracket from the coil power plug



6. Unplug the coil power assembly from the midplane board (Figure 112 (page 108)).

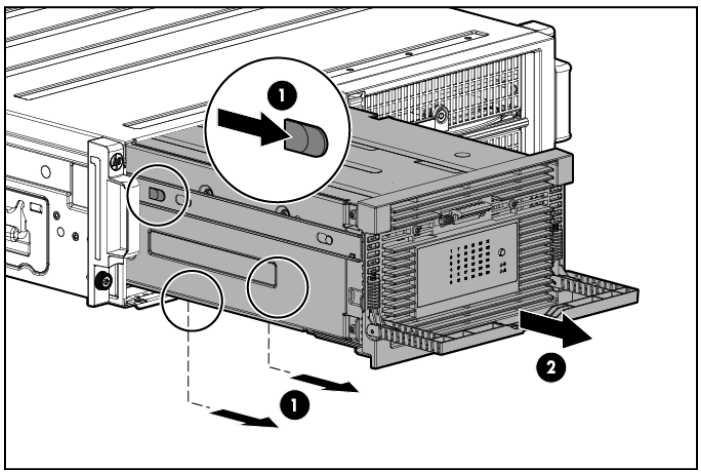
Figure 112 Unplugging the coil power assembly



7. Press the release mechanism on the side rail (1, Figure 113 (page 108)), and then pull the hard drive drawer fully out of the enclosure (2).

⚠ **WARNING!** The hard drive drawer is heavy, even after removing the hard drives. Make sure the drawer is fully supported as you remove it from the enclosure.

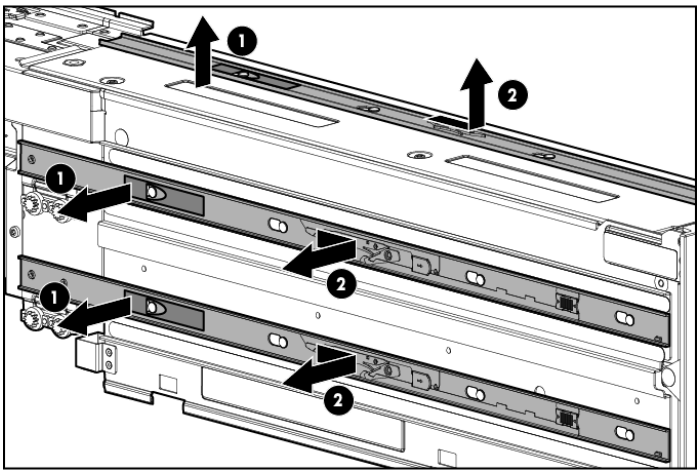
Figure 113 Removing the drive drawer



8. Lift the release tab on the side or bottom rail (1, Figure 114 (page 109)), and then slide the rail toward the front of the drive drawer to remove the rail (2).

NOTE: Repeat this step for all rails.

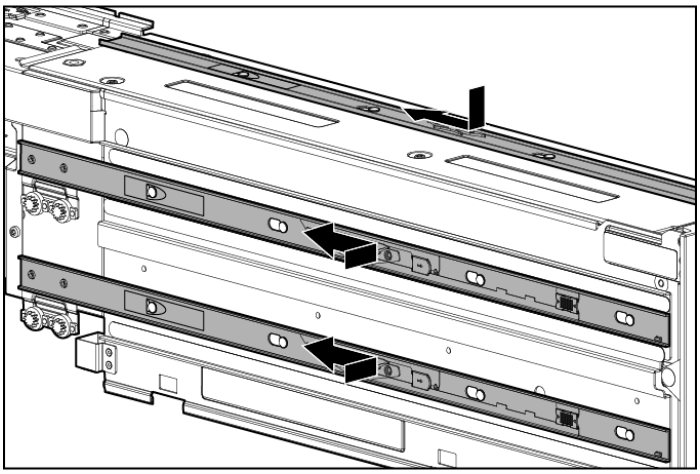
Figure 114 Removing the drive drawer rails



Replacing the drive drawer rails

1. Align the replacement rail with the tabs, and slide it toward the back of the drive drawer until the rail locks into place (Figure 115 (page 109)).

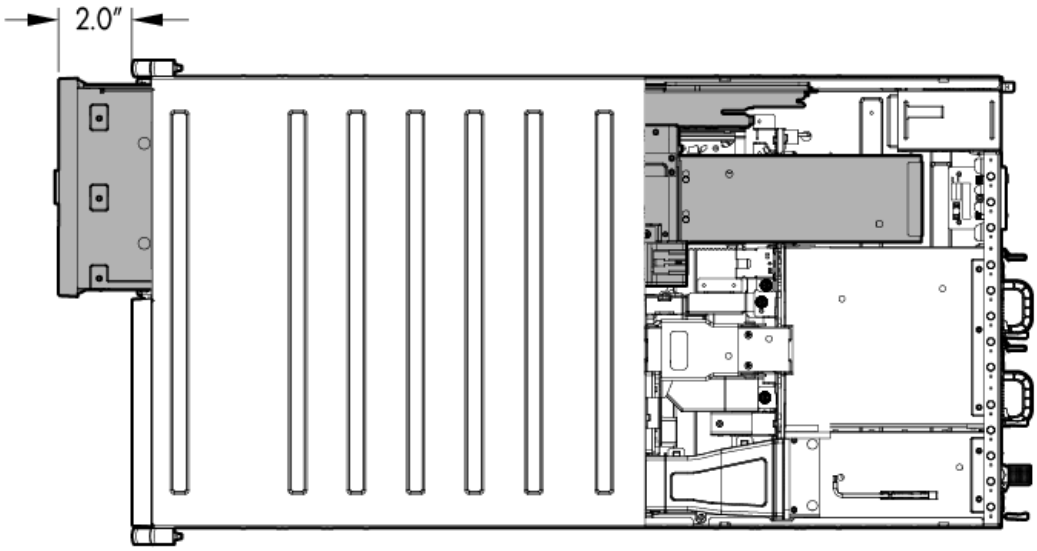
Figure 115 Installing the drive drawer rails



2. Align the replacement drive drawer rail with the three enclosure rails and then push the drive drawer partially back into the system enclosure so that approximately two inches of the drawer is still out of the enclosure (Figure 116 (page 110)).

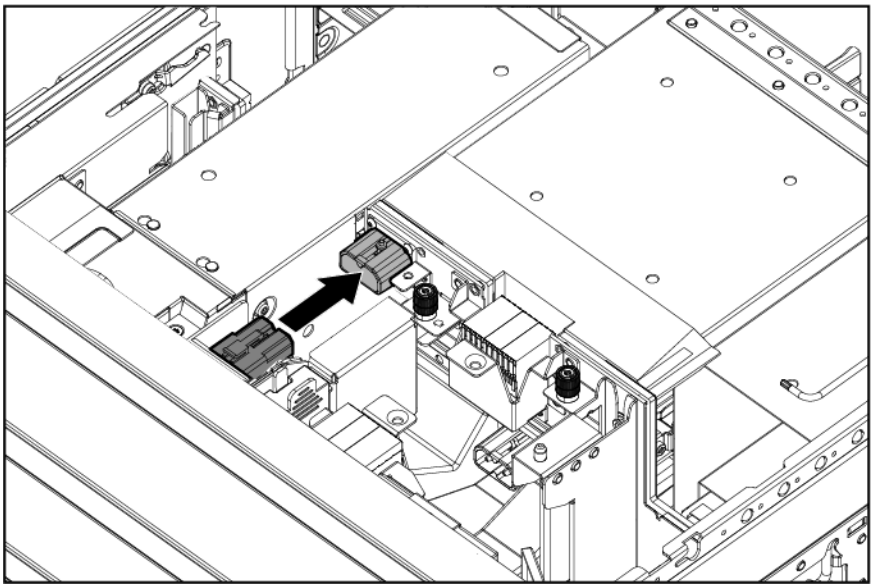
CAUTION: Do not push the drive drawer completely into the enclosure. You must first connect the power coil assembly to prevent damaging the power coil assembly.

Figure 116 Partially installing the drive drawer



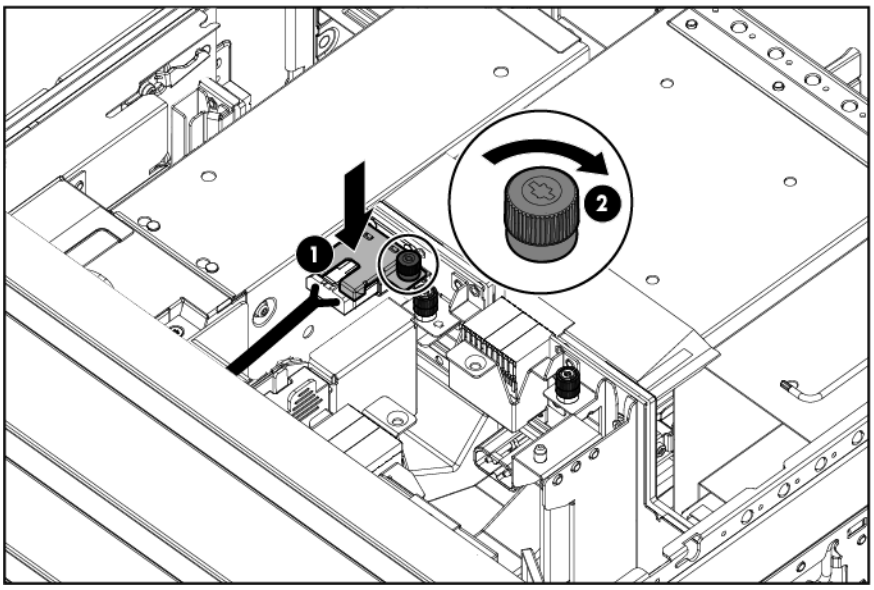
3. Pull the cable slightly out of the coil power plug and connect it to the midplane board (Figure 117 (page 110)).

Figure 117 Connecting the coil power assembly to the midplane board



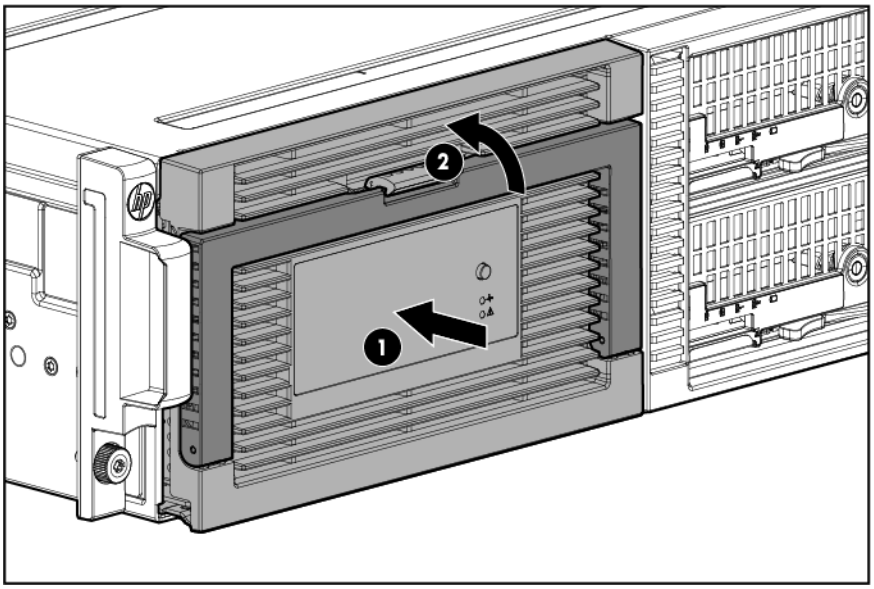
4. Reattach the plug bracket (1, Figure 118 (page 111)) to the coil power plug and tighten the thumbscrew (2).

Figure 118 Reattaching the plug bracket to the coil power plug



5. Push the drive drawer fully back into the system enclosure (1, Figure 119 (page 111)) and the handle back into place (2).

Figure 119 Pushing the drive drawer into the system enclosure



6. Replace the top back panel.
7. Replace the enclosure as described in "Inserting the system enclosure into the rack" (page 76).

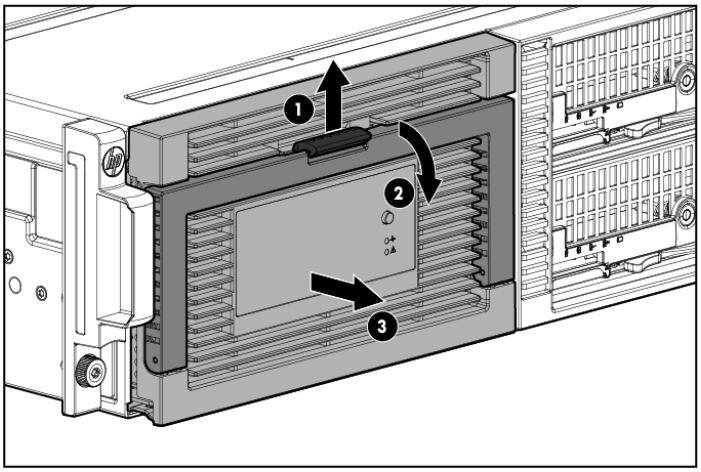
Removing and replacing the enclosure rails

Removing the enclosure rails

1. Power off the system as described in "Powering the system off and on" (page 67).
2. Remove the enclosure as described in "Removing the system enclosure from the rack" (page 75).

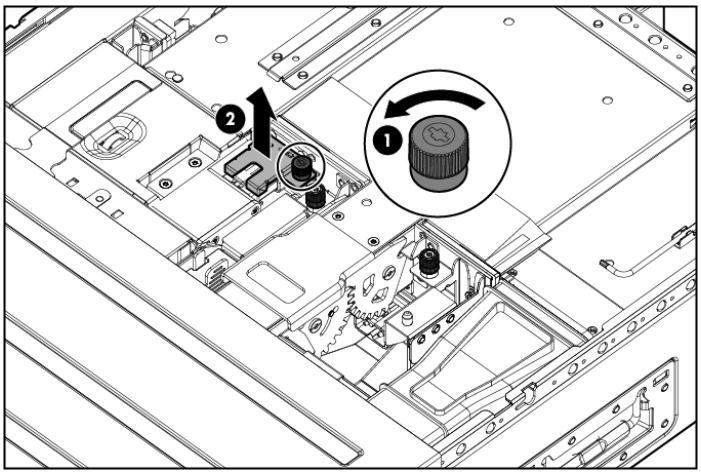
3. Extend the hard drive drawer (Figure 120 (page 112)):
   a. Press upward on the release button on the hard drive drawer (1).
   b. Pull the drawer handle down 90 degrees (2).
   c. Extend the hard drive drawer (3).

Figure 120 Extending the hard drive drawer



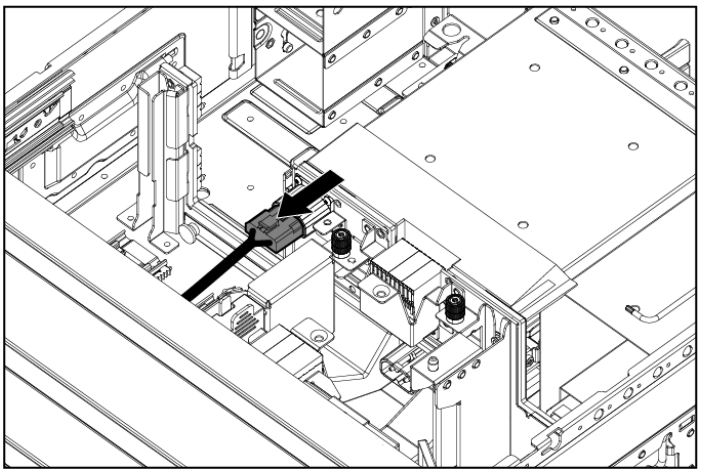
4. Remove the plug bracket (2, Figure 121 (page 112)) from the coil power plug by removing the thumbscrew (1).

Figure 121 Removing the plug bracket from the coil power plug



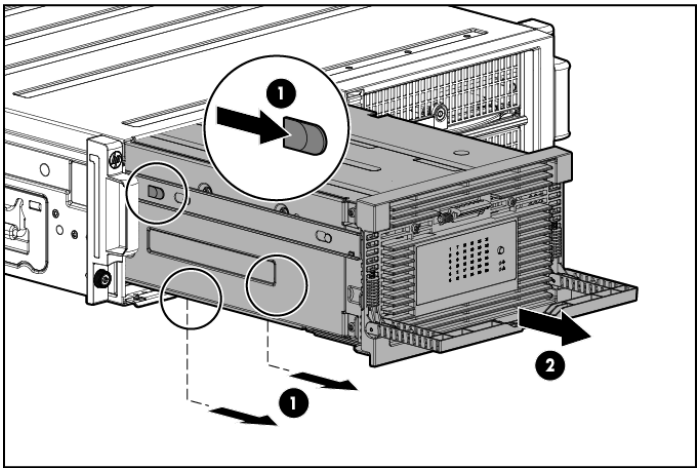
5. Unplug the coil power assembly from the midplane board (Figure 122 (page 113)).

Figure 122 Unplugging the coil power assembly



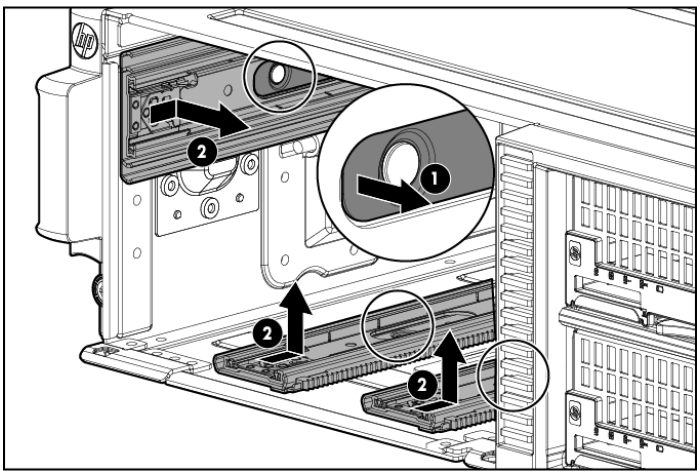
6. Press the release mechanism on the side rail (1, Figure 123 (page 113)), and then pull the hard drive drawer fully out of the enclosure (2).

Figure 123 Removing the drive drawer



7. Lift the release mechanism on the rail (side or bottom) (1, Figure 124 (page 113)), and then push the rail back and up to release and remove the rail (2).

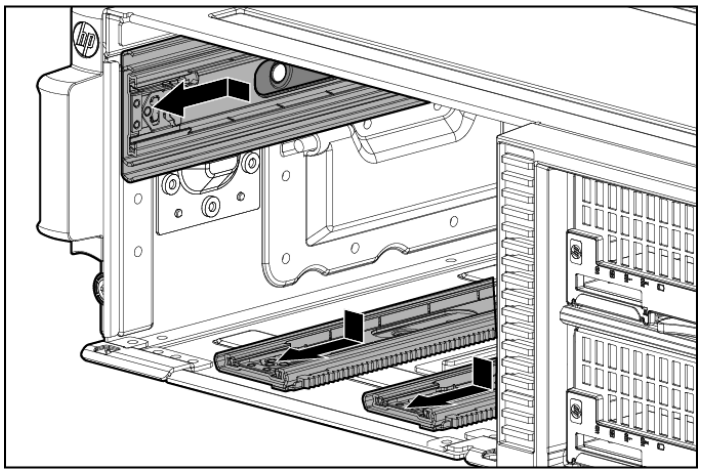
Figure 124 Removing the enclosure rails



Replacing the enclosure rails

1. Align the replacement rail, and then attach it by sliding the rail toward the front of the enclosure (Figure 125 (page 114)).

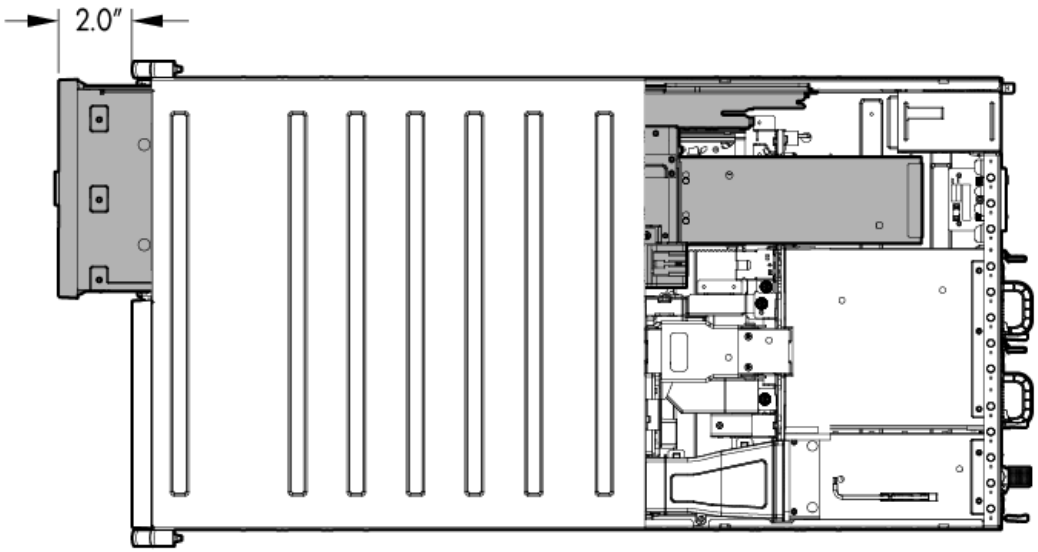
Figure 125 Installing the enclosure rails



2. Align the replacement drive drawer rail with the three enclosure rails and then push the drive drawer partially back into the system enclosure so that approximately two inches of the drawer is still out of the enclosure (Figure 126 (page 114)).

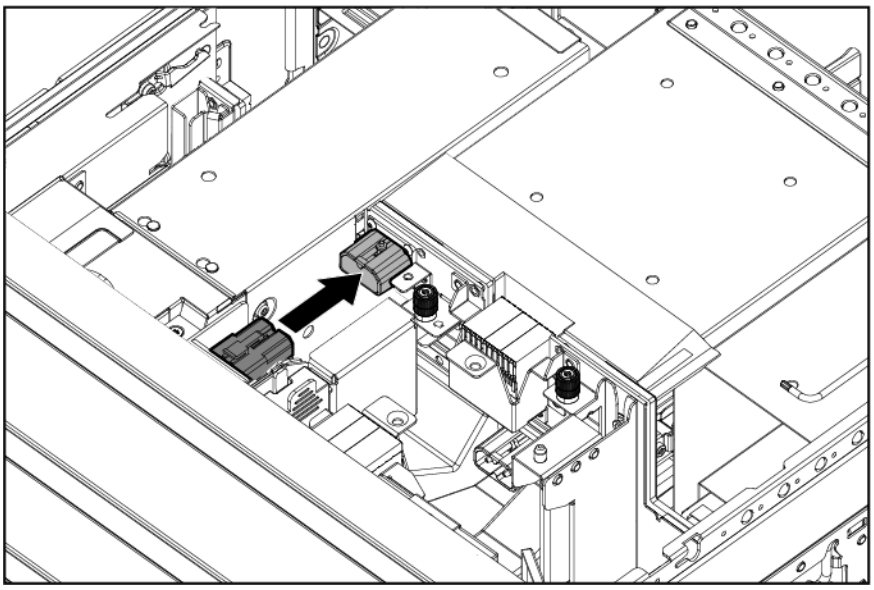
CAUTION: Do not push the drive drawer completely into the enclosure. You must first connect the power coil assembly to prevent damaging the power coil assembly.

Figure 126 Partially installing the drive drawer



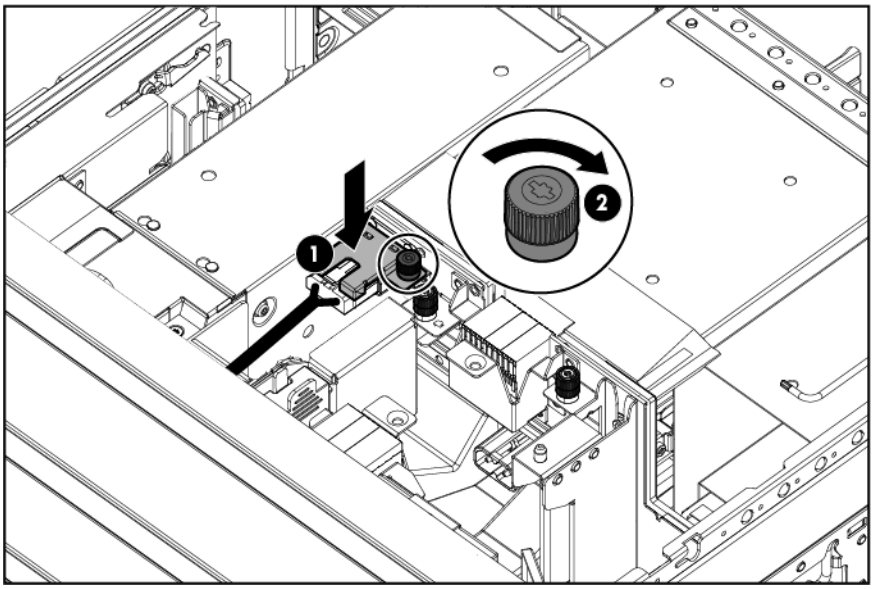
3. Pull the cable slightly out of the coil power plug and connect it to the midplane board (Figure 127 (page 115)).

Figure 127 Connecting the coil power assembly to the midplane board



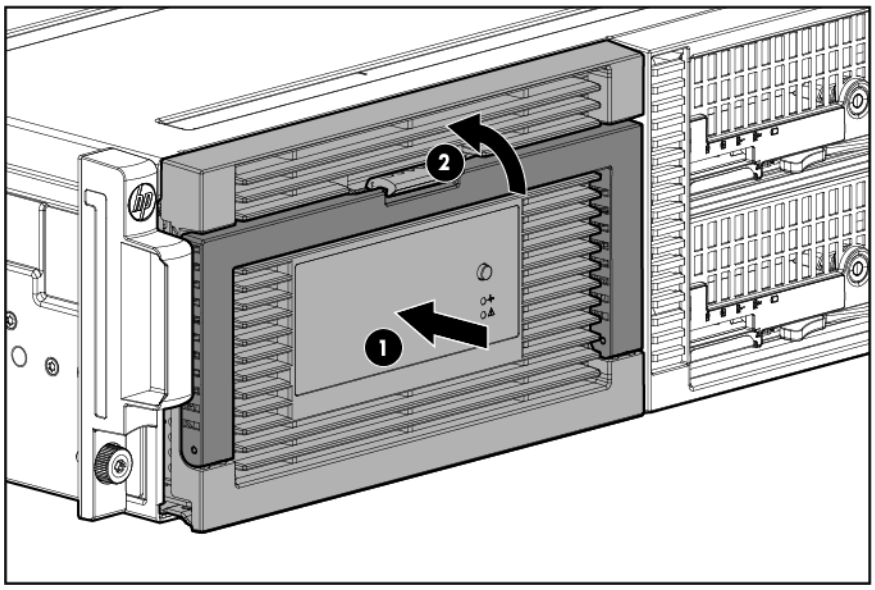
4. Reattach the plug bracket (1, Figure 128 (page 115)) to the coil power plug and tighten the thumbscrew (2).

Figure 128 Reattaching the plug bracket to the coil power plug



5. Push the drive drawer fully back into the system enclosure (1, Figure 129 (page 116)) and the handle back into place (2).

Figure 129 Pushing the drive drawer into the system enclosure



6. Replace the enclosure as described in "Inserting the system enclosure into the rack" (page 76).

Removing and replacing the rack rails

For detailed instructions on installing the rack rails, see the *HP 3U Storage System Rail Kit Installation Instructions*.

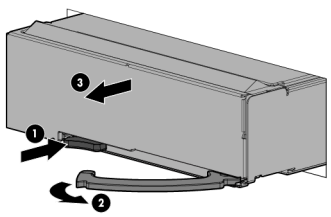
Removing and replacing server blades

Removing the server blade

⚠ **CAUTION:** Do not use the server blade release lever to lift or carry the server blade. Always support the weight of the server blade by handling the chassis directly. Improper use can damage the release lever and the server blade.

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Power off the appropriate server blade by clicking **Start** and then select **Shut Down**.
3. Remove the server blade (Figure 130 (page 116)):
   a. Push the button to release the handle (1).
   b. Pull the handle toward you (2).
   c. Remove the server blade (3).

Figure 130 Removing the server blade



4. Place the server blade on a flat, level work surface.

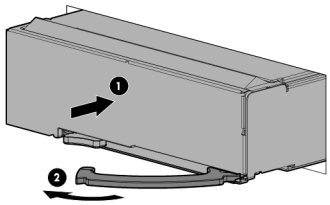
WARNING! To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

CAUTION: To prevent damage to electrical components, properly ground the server blade before beginning any installation procedure. Improper grounding can cause ESD damage.

Replacing the server blade

1. Install the server blade (1, Figure 131 (page 117)), and then push the handle into place with the handle open (2).

Figure 131 Replacing the server blade



2. Power on the server blade.
3. Confirm that the system has resumed normal operations.

Removing and replacing the server blade hard drive

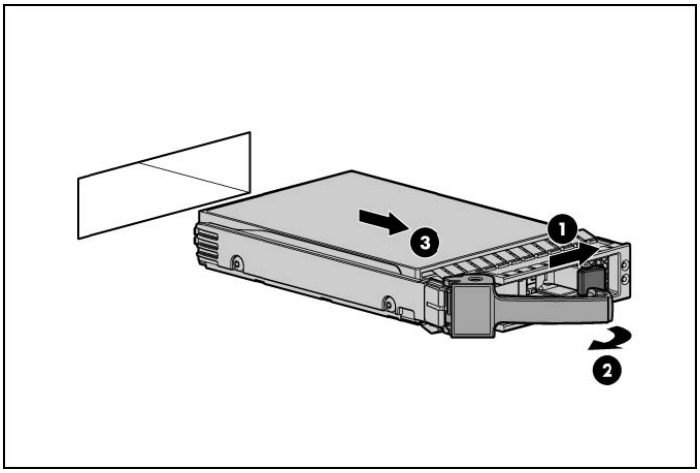
Removing the server blade hard drive

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Back up all data on the hard drive.

3. Remove the server blade hard drive (Figure 132 (page 118)):
   a. Press the release button (1).
   b. Pull the release lever (2).
   c. Remove the hard drive (3).

CAUTION: To prevent improper cooling and thermal damage, replace the drive quickly. Do not operate the server unless all bays are populated.

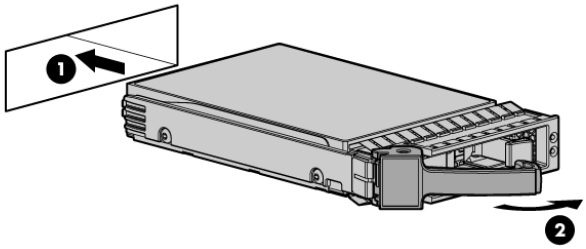
Figure 132 Removing the server blade hard drive



Replacing the server blade hard drive

1. Install the hard drive (Figure 133 (page 118)):
   a. Insert the replacement hard drive with the lever in the open position (1).
   b. Push the release lever into place (2).

Figure 133 Installing the hard drive



2. Verify that the server blade hard drive is working properly by checking the associated LED status.

NOTE: This may require a wait time of less than 15 seconds for the LED status to appear.

3. Confirm that the system has resumed normal operations.
4. Confirm the firmware version.

NOTE: You must reboot the system after updating a server blade hard drive.

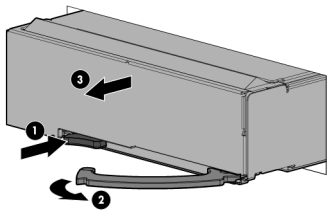
Removing and replacing the 1210m controller board components

Removing the 1210m controller card

⚠ **WARNING!** Wear gloves or use care when removing the capacitor pack to avoid physical injury.

1. Verify the failed component as described in "Verifying component failure" (page 73).
2. Back up all data.
3. Close all applications.
4. To power off the server blade, click **Start**, and then select **Shut down**.
5. Remove the server blade (Figure 134 (page 119)):
   a. Push the button to release the handle (1).
   b. Pull the handle toward you (2).
   c. Remove the server blade from the enclosure (3).

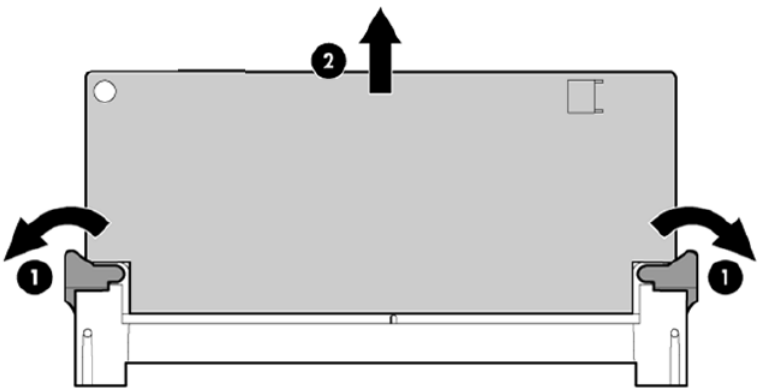
Figure 134 Removing the server blade



6. Press the release button on the access panel and slide the access panel to the left to remove it.
7. The original cache module is connected to a capacitor pack, so observe the cache module LEDs:
   - If the amber LED is solid, data transfer to the flash device on the cache module is in progress. Do not remove the cache module until the amber LED is off, and then continue with the next step.
   - If the amber LED is not lit, proceed to the next step.
8. Open the ejector latches (1, Figure 135 (page 119)) on each side of the cache module slot.

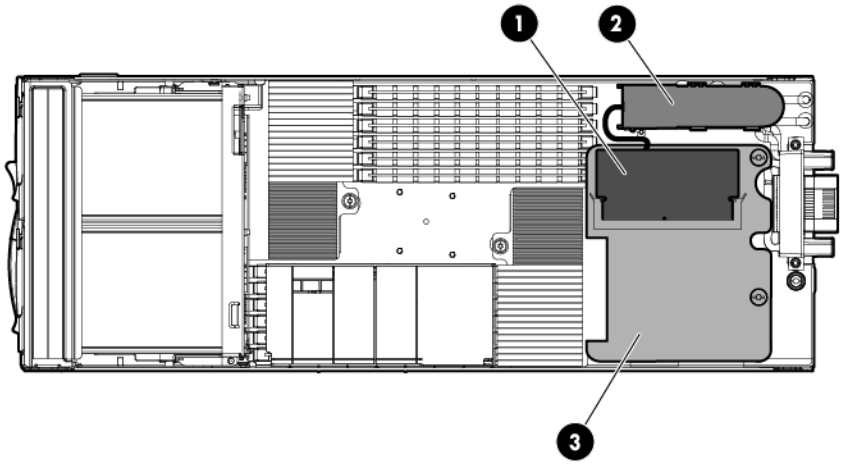
   Typically, opening the ejector latches ejects the cache module automatically. If the module does not eject automatically after you open the ejector latches, remove the cache module (2) by grasping only the edges.

Figure 135 Removing the cache module

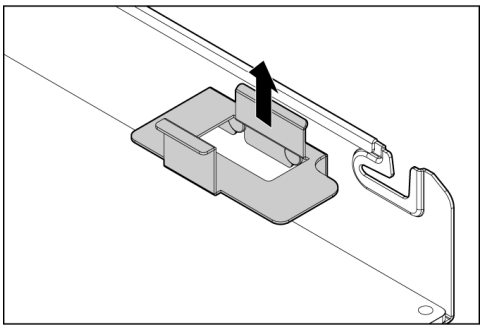


9. Remove the capacitor pack (2, Figure 136 (page 120)).
   The 1210m cache module (1) and the 1210m controller card (3) are also shown.

Figure 136 Removing the capacitor pack

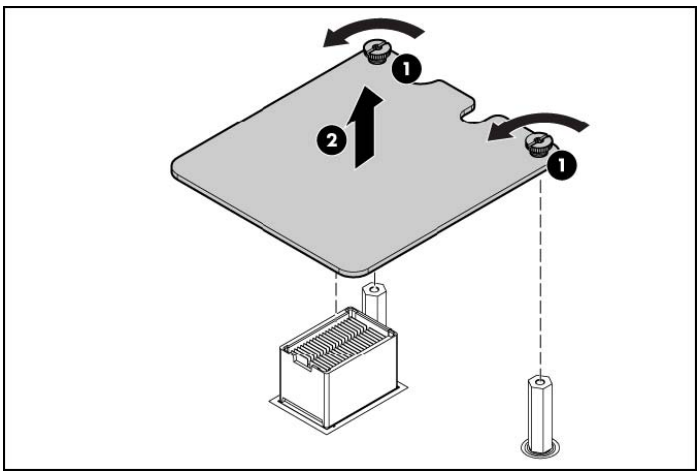


NOTE: Be sure to first remove the capacitor pack bracket.



10. Loosen the two captive screws and remove the 1210m controller card (Figure 137 (page 120)).

Figure 137 Removing the controller card

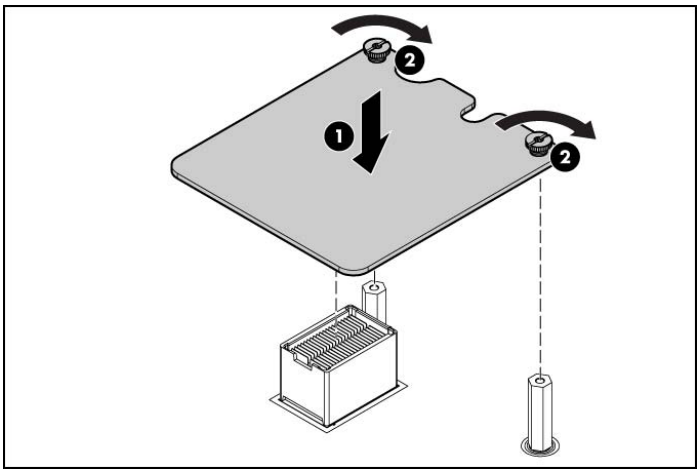


Replacing the 1210m controller card

1. Install the cache module and capacitor in the cache module slot of the replacement controller.
2. Close the ejector latches on the cache module slot.
3. Install the replacement controller card (1, Figure 138 (page 121)). Press down on the connector to seat the card (2).

CAUTION: Be sure not to press on the cache module when replacing the controller card. It could damage the controller card and result in errors.

Figure 138 Replacing the 1210m controller card



4. Tighten the captive screws.
5. Replace the capacitor in its cradle.
6. Install the access panel.
7. Install the server blade in the enclosure.
8. Confirm that the replacement 1210m controller is running current firmware (see"Upgrading a component's firmware" (page 62)).

NOTE: You must reboot the storage solution after updating firmware on the 1210m controller because both controllers must be updated at the same time.

Removing and replacing the 1210m cache module

Removing the 1210m cache module

WARNING! Wear gloves or use care when removing the capacitor pack to avoid physical injury.

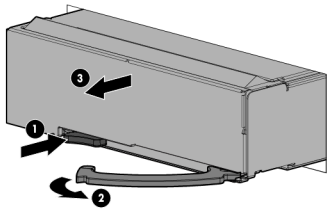
CAUTION:

- When replacing the cache module, ensure that the replacement is compatible with the 1210m controller. Otherwise, the controller could malfunction and you could lose data.
- ESD can damage electronic components. Be sure you are properly grounded before performing this procedure.

1. Back up all data.
2. Close all applications.
3. Power off the server blade.

4. Remove the server blade (Figure 139 (page 122)):
   a. Push the button to release the handle (1).
   b. Pull the handle toward you (2).
   c. Remove the server blade (3).

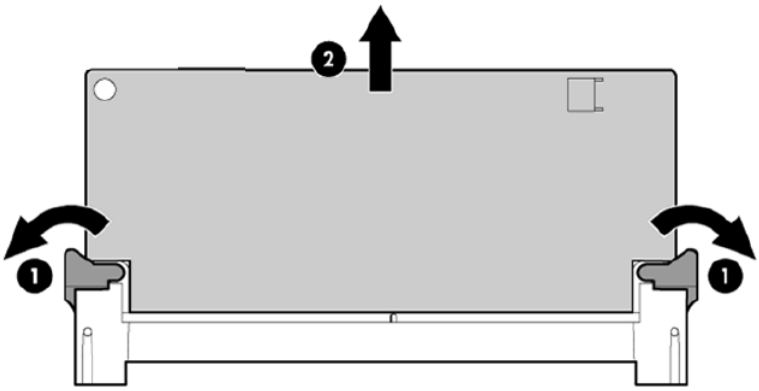
Figure 139 Removing the server blade



5. Press the release button on the access panel and slide the access panel to the left to remove it.
6. The original 1210m cache module is connected to a capacitor pack, so observe the cache module LEDs:
   - If the amber 1210m cache LED is solid, data transfer to the flash device on the cache is in progress. Do not remove the 1210m cache until the amber LED is off, and then continue with the next step.
   - If the amber 1210m cache LED is not lit, proceed to the next step.
7. Open the ejector latches (1, Figure 140 (page 122)) on each side of the 1210m cache module slot.

   Typically, opening the ejector latches ejects the cache module automatically. If the module does not eject automatically after you open the ejector latches, remove the cache module (2) by grasping only the edges.

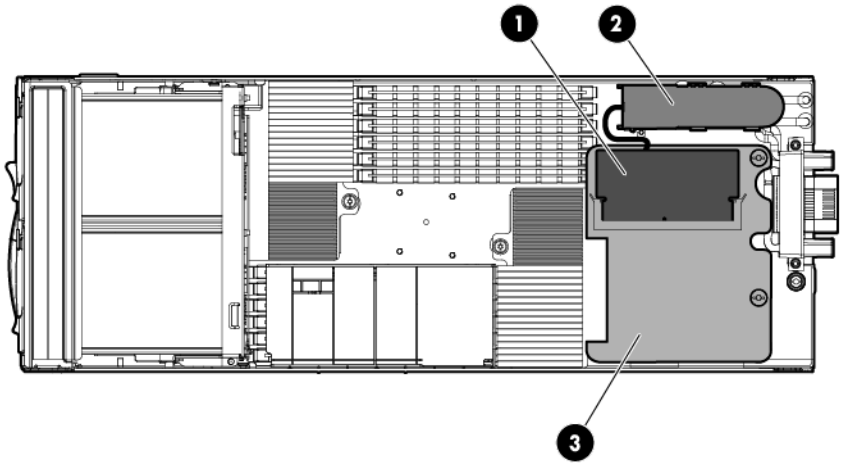
Figure 140 Removing the cache module



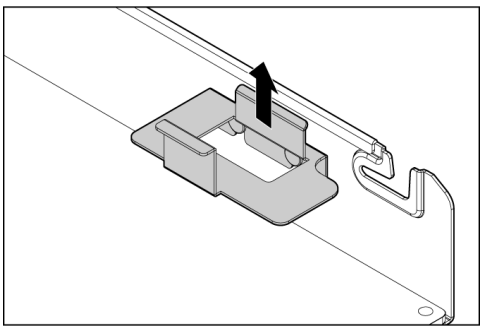
8. Remove the capacitor pack (2, Figure 141 (page 123)).

   The 1210m cache module (1), and the 1210m controller card (3) are also shown.

Figure 141 Removing the cache module and the capacitor pack

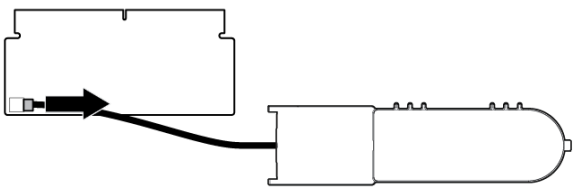


NOTE: Be sure to first remove the capacitor pack bracket.



9. Disconnect the capacitor pack cable from the connector on the top of the cache module (Figure 142 (page 123)).

Figure 142 Disconnecting the capacitor pack cable

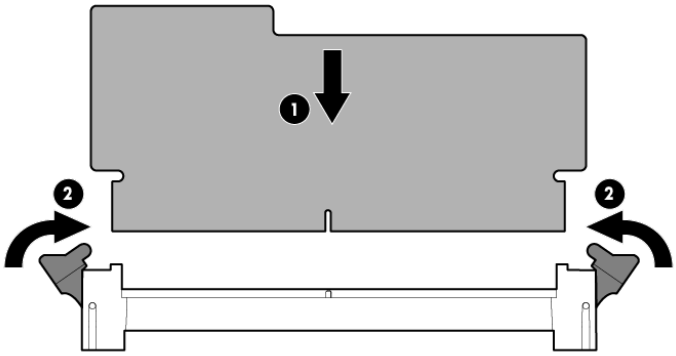


Replacing the cache module

1. Connect the capacitor pack cable to the replacement cache module.

2. Complete the following (Figure 143 (page 124)):
   a. Install the replacement cache module in the cache module slot (1).
   b. Close the ejector latches on the cache module slot (2).

Figure 143 Replacing the cache module



3. Install the capacitor pack bracket and insert the capacitor pack on the chassis wall.
4. Install the access panel.
5. Install the server blade into the enclosure.

Removing and replacing the capacitor pack

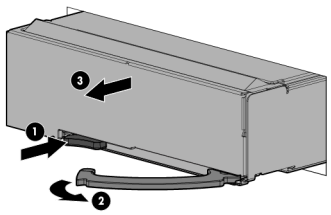
Removing the capacitor pack

WARNING! Wear gloves or use care when removing the capacitor pack to avoid physical injury.

CAUTION: ESD can damage electronic components. Be sure you are properly grounded before performing this procedure.

1. Back up all data.
2. Close all applications.
3. Power off the server blade.
4. Remove the server blade (Figure 144 (page 124)):
   a. Push the button to release the handle (1).
   b. Pull the handle toward you (2).
   c. Remove the server blade (3).

Figure 144 Removing the server blade

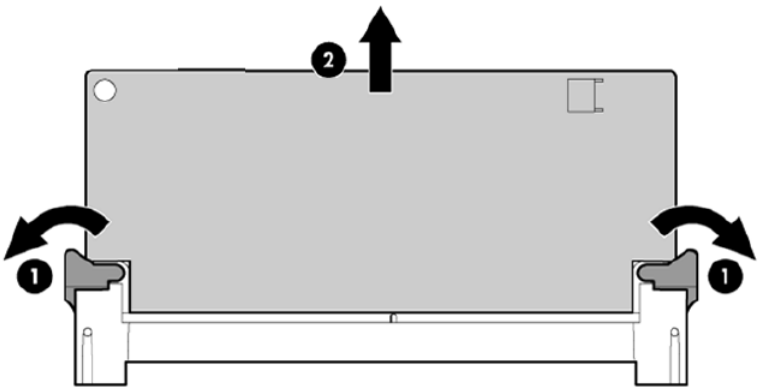


5. Press the release button on the access panel and slide the access panel to the left to remove it.

6. The original capacitor pack is connected to a cache module, so observe the cache module LEDs:
   - If the amber cache LED is solid, data transfer to the flash device on the cache is in progress. Do not remove the cache until the amber LED is off, and then continue with the next step.
   - If the amber cache LED is not lit, proceed to the next step.
7. Open the ejector latches (1, Figure 145 (page 125)) on each side of the cache module slot.

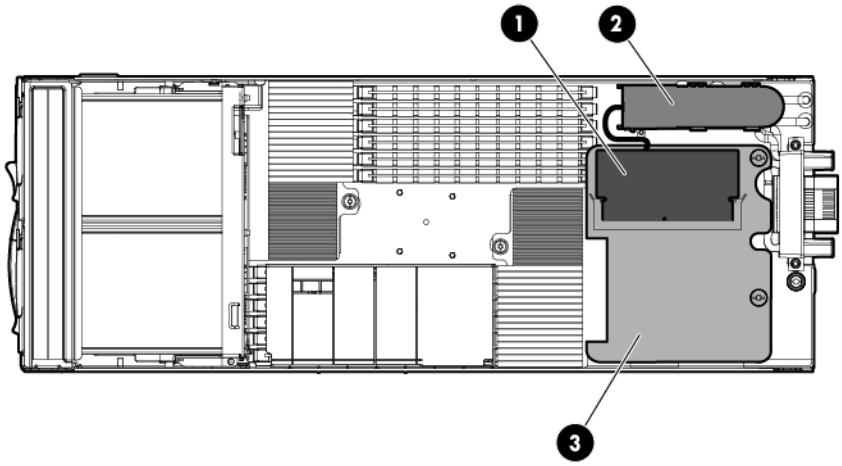
   Typically, opening the ejector latches ejects the cache module automatically. If the module does not eject automatically after you open the ejector latches, remove the cache module (2) by grasping only the edges.

Figure 145 Removing the cache module

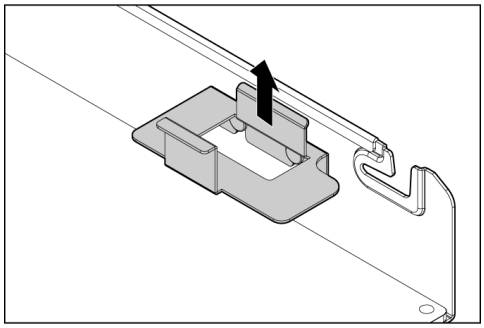


8. Remove the cache module (1, Figure 146 (page 125)) from the controller card (3) and the capacitor pack (2) from the server blade.

Figure 146 Removing the cache module and the capacitor pack

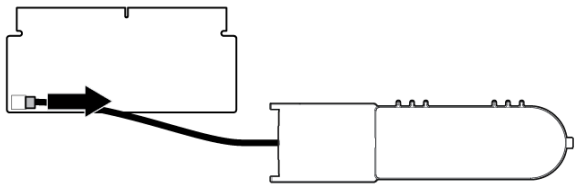


NOTE: Be sure to first remove the capacitor pack bracket.



9. Disconnect the capacitor pack cable on the top of the cache module (Figure 147 (page 126)).

Figure 147 Disconnecting the capacitor cable from the module



Replacing the capacitor pack

1. Connect the replacement capacitor pack to the cache module.
2. Install the cache module in the cache module slot.
3. Install the cache module on the controller, and then close the ejector latches on the cache module slot.
4. Install the capacitor pack bracket and insert the replacement capacitor pack on the chassis wall.
5. Install the access panel.
6. Install the server blade in the enclosure.

IMPORTANT: After installing a capacitor pack, you might see a POST message during reboot indicating that the array accelerator (cache) is disabled temporarily. This behavior is normal because the new capacitor pack is likely to have a low charge.

The controller operates properly while the capacitor pack is recharging, although the performance advantage of the array accelerator is absent. You do not need to take any action because the recharge process begins automatically when you install the capacitor pack. When the capacitor pack has been charged to a predetermined level, the array accelerator is enabled automatically.

Removing and replacing the Mezzanine NIC

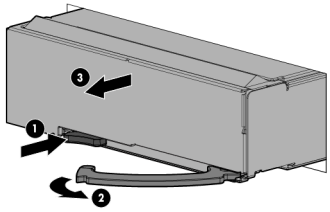
Optional Mezzanine cards enable additional network connectivity.

Removing the Mezzanine NIC

1. Back up all data.
2. Close all applications.

3. To power off the server blade, click **Start** and then select **Shut down**. Verify the server blade is shut down before continuing.
4. Remove the server blade (Figure 148 (page 127)):
   a. Push the button to release the handle (1).
   b. Pull the handle toward you (2).
   c. Remove the server blade (3).

Figure 148 Removing the server blade



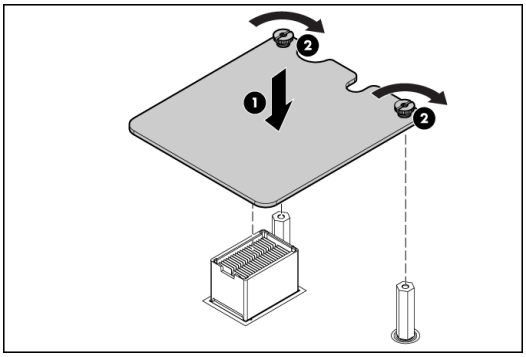
5. Press the release button on the access panel and slide the access panel to the left to it. The Mezzanine NIC is under the controller card.
6. The 1210m cache module is connected to a capacitor pack, so observe the cache module LEDs (Figure 36 (page 50)):
   - If the amber LED is solid, data transfer to the flash device on the cache module is in progress. Do not remove the controller card until the amber LED is off, and then continue with the next step.
   - If the amber LED is not lit, proceed to the next step.
7. Loosen the three captive screws and remove the Mezzanine NIC.

Replacing the Mezzanine NIC

To replace the Mezzanine NIC:

1. Install the Mezzanine NIC, press down on the connector to seat the board (1, Figure 149 (page 127)), and then tighten the captive screws (2).

Figure 149 Installing the Mezzanine NIC



2. Reinstall the controller card, and then install the access panel.
3. Install the server blade in the enclosure. If necessary, power on the blade by pressing the power button on the front of the server blade.
4. Confirm the firmware version.

NOTE: You must reboot the storage solution after updating the Mezzanine NIC and server blade firmware.

8 Messaging system recovery

This chapter describes how to use the E5000 System Recovery DVD that is provided with your messaging system.

System Recovery DVD

The E5000 System Recovery DVD enables you to install an image or recover from a catastrophic failure.

At any time, you may boot from the DVD and restore the server to the factory condition. This enables you to recover the system if all other means to boot the server fail.

While the recovery process makes every attempt to preserve the existing data volumes, you should have a backup of your data before recovering the system.

IMPORTANT: All data on the original OS logical drive is erased during the recovery process.

Restoring the factory image with a DVD or USB flash device

1. Do one of the following:
   a. For direct access, attach the SUV cable (supplied with the System) to the port on the front of the server blade you want to recover. Connect a monitor and USB mouse to the SUV cable. Using the remaining USB connector on the SUV cable, connect either a USB DVD drive (and insert the System Recovery DVD) or a bootable USB flash device (prepared with a System Recovery image).
   b. For remote management access, connect to the server using iLO from a client PC. Insert the System Recovery DVD in the client PC or attach a bootable USB flash device that has been prepared with a System Recovery image.
2. Reboot the server blade to either the USB flash device or USB DVD drive.

   The system BIOS attempts to boot to the USB device first by default. Watch the monitor output during the boot as you may need to press a key to boot to the USB media.

   NOTE: If directly connected, you may have to change the BIOS settings to ensure proper boot sequence. If connected remotely, you may have to change some iLO settings to ensure proper boot sequence.

3. Click **Restore Factory Image**.

   The recovery process completes with minimal user intervention required. The server automatically reboots more than once.

   IMPORTANT: Do not interrupt the recovery process.

   When the upgrade process is complete, the system automatically logs in as the Administrator using “HPinvent!” as the password, and then prompts you to change the Administrator password.
4. Remove the directly connected DVD or flash device (or remotely connected iLO virtual DVD or flash device) from the server.

Using a USB flash drive for messaging system recovery

Creating a System Recovery USB flash drive is supported on Windows Vista, Windows 7, Windows Storage Server 2008, and Windows Storage Server 2008 R2 operating systems only.

If you create a backup copy of the System Recovery DVD using a USB flash drive, you can also use it to restore the system.

To create a system recovery USB flash drive:

1. Obtain a blank 4 GB or larger USB flash drive.
2. Insert the USB flash device into your workstation or laptop.
3. Open an elevated command prompt with Administrator privileges.
4. At the command prompt, enter `diskpart`.
5. At the diskpart prompt, enter `list disk`.
6. Identify the disk number that corresponds to the flash drive. This is typically the last disk listed.
7. Enter `sel disk <USB drive number>` (for example, `sel disk 4`).
8. Enter `clean`. This deletes everything from the USB flash device, so ensure that you have the proper disk selected.
9. Enter `create par primary`.
10. Enter `sel par 1`.
11. Enter `format fs=fat32 quick`.

NOTE: If your USB flash drive does not support the FAT32 file system, format the drive as NTFS instead. Omitting the `quick` parameter lengthens the format time considerably.

12. Enter `active` to mark the partition as active.
13. Enter `assign letter=<drive letter>` to assign a drive letter to the USB drive (for example, `assign letter=U`).
14. Enter `exit` to quit diskpart context commands.
15. Insert the System Recovery DVD into the computer.
16. Using Windows Explorer or a comparable utility, open the DVD so that all contents are visible, including hidden and system files.
17. Select all of the files (including bootmgr) on the DVD.
18. Copy all of the selected files to the root of the USB flash drive.

Managing disks after a system restoration

When you restore a system using the System Recovery DVD, the E5000 Configuration Wizard automatically runs and detects the existence of the data volumes (volumes managed by the 1210m controller).

IMPORTANT: You must stop the wizard and perform the following steps before allowing the wizard to complete:

1. Reset the computer account in Active Directory, which enables the computer to be rejoined. Do not delete the object.
2. Open the Registry Editor and add the following registry key if it is not already present: `Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Hewlett-Packard\HP Configuration Wizard`
3. Add the following entries to the HP Configuration Wizard key:

   - DWORD (32-bit) named DomainJoined and change the Hex value to 1.

   - DWORD (32-bit) named ComputerNamed and change the Hex value to 1.
4. Manually rename the computer to the original computer name and rejoin it to the domain. Reboot the computer as prompted. When the computer has rebooted, the E5000 Configuration Wizard should automatically run.

The wizard remounts the data volumes as appropriate using the mount points in the `C:\ExchangeDatabases` directory. For example, the following mount points might be found:

- `C:\ExchangeDatabases\Recovery`
- `C:\ExchangeDatabases\VOL1`

- `C:\ExchangeDatabases\VOL2`
- `C:\ExchangeDatabases\VOL3`

Restoration in nonproduction environments

If the E5300 Messaging System was in a nonproduction environment prior to the system recovery and the Exchange data does not have to be retained, the data on the appropriate volumes should be deleted. This includes the mailbox databases and logs found in the mount points listed under `C:\ExchangeDatabases`. The HUB transport database and logs (located on the H:\ drive) should also be deleted. Use the E5000 Exchange Deployment Tool to create a fresh deployment of Exchange 2010.

NOTE:

In the Exchange Deployment Tool step to remove the DAG, you must use the `ConfigurationOnly` parameter. The command structure is:

```
Remove-DatabaseAvailablityGroupServer -Identity (yourDAG) -MailboxServer
(server being recovered) -ConfigurationOnly:$True -Confirm:$False
```

- If an error message displays that there must be minimum of two servers in a DAG (due to the `DatacenterActivationMode` value being set to `DagOnly`), you can turn this off by issuing the following command:

```
Set-DatabaseAvailabiltyGroup –Identity (yourDag)
–DatacenterActivationMode Off
```

After restoring the server and the DAG is operational, remember to set `DatacenterActivationMode` back to `DAGOnly`.

Restoration in production environments

If the E5300 Messaging System was in a production environment and the Exchange data must to be retained, follow the appropriate Exchange recovery steps for your situation. Remember that the E5000 system uses a multirole Exchange configuration with the Client Access Server (CAS), Hub Transport Server (HT), and Mailbox Server (MBX) roles installed on each of the two nodes. **Do not** use the E5000 Exchange Deployment Tool in this situation. You can recover a lost Exchange server by using the `Setup /m:RecoverServer` switch in Microsoft Exchange Server 2010. See http://technet.microsoft.com/en-us/library/dd638206.aspx for more information.

9 Support and other resources

Contacting HP

HP technical support

For worldwide technical support information, see the HP support website:

http://www.hp.com/support

Before contacting HP, collect the following information:

- Product model names and numbers
- Technical support registration number (if applicable)
- Product serial numbers
- Error messages
- Operating system type and revision level
- Detailed questions

Subscription service

HP recommends that you register your product at the Subscriber's Choice for Business website:

http://www.hp.com/go/e-updates

After registering, you receive email notification of product enhancements, new driver versions, firmware updates, and other product resources.

Related information

The following documents provide related information:

- *HP E5000 Series Messaging System for Microsoft Exchange Quick Start Guide*
- *HP 3U Storage System Rail Kit Installation Instructions*

To locate the messaging system documents, go to http://www.hp.com/go/e5000, and then click the support link.

You can also find these documents from the Manuals page of the HP Business Support Center website:

http://www.hp.com/support/manuals

HP websites

For additional HP information, see the following HP websites:

- http://www.hp.com/go/E5000
- http://www.hp.com
- http://www.hp.com/go/storage
- http://www.hp.com/go/hpsim
- http://www.hp.com/service_locator
- http://www.hp.com/support/manuals
- http://www.hp.com/support/downloads

- http://www.hp.com/storage/whitepapers
- http://www.hp.com/solutions/activeanswers/exchange

Microsoft websites

For additional Microsoft information, see the following Microsoft websites:

- http://technet.microsoft.com/en-us/library/bb124558.aspx
- http://technet.microsoft.com/en-us/library/bb125255(EXCHG.80).aspx
- http://msdn.microsoft.com/en-us/library/aa562607(EXCHG.140).aspx
- http://msdn.microsoft.com/en-us/library/cc425506(EXCHG.80).aspx

Rack stability

Rack stability protects personnel and equipment.

⚠ **WARNING!** To reduce the risk of personal injury or damage to equipment:

- Extend leveling jacks to the floor.
- Ensure that the full weight of the rack rests on the leveling jacks.
- Install stabilizing feet on the rack.
- In multiple-rack installations, fasten racks together securely.
- Extend only one rack component at a time. Racks can become unstable if more than one component is extended.

10 Documentation feedback

HP is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (**docsfeedback@hp.com**). Include the document title and part number, version number, or the URL when submitting your feedback.

A Managing the EMU

This chapter describes how to manage the EMU using the CLI or the Enclosure Manager physical interface.

CLI reference

The CLI is the primary interface for managing the Enclosure Manager and is accessed via secure shell protocol over the LAN. Using the CLI is necessary for functions not possible through any other mechanism or interface. For example, creating and setting Enclosure Manager user accounts and passwords and remotely powering the enclosure ON or OFF can be done only with the CLI.

Command line conventions

CLI input is case-insensitive except when otherwise noted. Commands are organized into a tree, with approximately 30 base commands. Each of these commands can have any number of subcommands. Subcommands can also have further subcommands. Each command used in this appendix follows the conventions listed in Table 14 (page 134).

Table 14 Command line conventions

Symbol	Description
< >	Denotes a variable must be substituted with a value, such as a user name. Do not include the < > symbols when entering the variable.
|	Used to separate input options.

{ }	Denotes a list of mandatory choices that must be made. For example, `SET ENCLOSURE UID {ON | OFF}` must be in one of the following forms:
	`SET ENCLOSURE UID ON`
	`SET ENCLOSURE UID OFF`

[ ]	Denotes an optional argument or set of characters.
” “	Used to enclose command arguments that contain spaces.

NOTE: All users logged into the CLI have administrator privilege. When a user account is created, the account has administrator privilege.

Operational groups

Descriptions of the CLI commands are organized by operational group instead of the parser implementation which is a tree of commands, subcommands, and sub-subcommands. The operational groups are:

- Authentication—user identity and authentication
- Time functions—Real Time Clock/Calendar control
- Role definition—access control
- Inventory and status—self explanatory
- Internet control—internal and external LAN management
- Server management—iLO dependent control of server
- Enclosure control—global control of enclosure, excluding JBOD management zone
- Forensic—global diagnostic context functions (not directed validation tests)
- Session—CLI session control

Authentication

This section defines EM authentication CLI functions.

ADD SSHKEY

Syntax

```
ADD SSHKEY <end marker><newline><certificate><newline><end marker>
```

Description

Adds an SSH key on the command line. Start with a string that does not appear within the certificate (end marker). Next, paste in the certificate. Terminate the command with the end marker. Failure to give a proper end marker before and after the certificate may cause the interface to wait for the appropriate end marker indefinitely.

Restrictions

This command is only available in script mode.

ADD USER

Syntax

```
ADD USER "<user name>"["<password>"]
```

Description

Adds a user to the system. If you do not provide a password, you are prompted for one. If script mode is enabled and the password is not provided, the password is assigned an unmatched string. This unmatched string requires an enclosure administrator to change the password to allow the new user to access the system.

Restrictions

- You can add a maximum of 30 users, including the reserved accounts.
- The *<user name>* is case-sensitive and must be unique to all other user names and group names. The user name must be 1 to 40 characters long and can include all alphanumeric characters, the hyphen, and the underscore.
- The *<user name>* must begin with a letter.
- The *<password>* must be 3 to 40 characters long. The character set includes all printable characters. If you do not enter a password, you are prompted to enter one.
- Reserved user names are: ALL (case insensitive), ADMINISTRATOR (case insensitive), switch1, switch2, switch3, switch4, switch5, switch6, switch7, switch8, daemon, ldapuser, nobody, tbmuser_, vcmuser_, root, and quire.

CLEAR SSHKEY

Syntax

```
CLEAR SSHKEY
```

Description

Disables a user account. The system immediately logs out the user and prevents the user from logging in until the account is enabled.

This command is used in the factory to disable the ‘root’ user account. The root user account is required to perform certain factory-only configuration and diagnostic operations when logged into the Linux shell.

Restrictions

None

DOWNLOAD SSHKEY

Syntax

```
DOWNLOAD SSHKEY <url>
```

Description

Downloads an authorized key file to use with Secure Shell 2, which can contain the public keys for the built-in Administrator user. Supported protocols are http, ftp, and tftp. The url should be formatted as `protocol://host/path/file`. If your ftp server does not support anonymous connections, then you can specify a username and password by replacing the host part in the above format with `username:password@host`. The authorized keys file must contain only protocol version 2 public keys. Each line of the file represents one key (empty lines and lines starting with # represent comments). Each protocol version 2 key consists of the following fields, separated by spaces: keytype, base64 encoded key, comment. Keytype is either ssh-rsa or ssh-dss. Downloading an SSH key file replaces all currently installed SSH keys.

Restrictions

None

ENABLE USER

Syntax

```
ENABLE USER <user name>
```

Description

Enables a user account that was previously disabled by the `DISABLE USER` command.

Restrictions

<user name> is case-sensitive.

REMOVE USER

Syntax

```
REMOVE USER {ALL | "<user name>"| CERTIFICATE "<user name>"}
```

Description

Removes the existing user specified by *<user name>* and/or any certificate mapped to this user. If the user is currently logged on, their sessions are terminated. Specifying `ALL` removes all users from the system except the default Administrator account. The user is prompted for confirmation except in script mode.

Restrictions

- The *<user name>* is case-sensitive.
- You cannot remove the Administrator user.

SET PASSWORD

Syntax

```
SET PASSWORD ["<password>"]
```

Description

Sets the password of the user who entered the command. The *<password>* parameter is optional, but failure to enter a password results in the system prompting you for a password.

- Passwords must be between 3 and 40 characters in length.
- Acceptable characters include any printable character.
- This command is not valid in script mode.

Restrictions

None

SET USER PASSWORD

Syntax

```
SET USER PASSWORD "<user name>"["<new password>"]
```

Description

Sets a user's password. If you do not supply a password on the command line, you are prompted to enter it.

Restrictions

- Only the Administrator account can modify the password of the Administrator account.
- The *<user name>* is case-sensitive.
- The *<new password>* must be 3 to 40 characters long.
- The character set includes all printable characters.
- This command is not valid in script mode.

SHOW USER

Syntax

```
SHOW USER [ [LIST | "<user name>"] ]
```

Description

Displays general user information and user rights (which is always "Admin") for this firmware version.

Restrictions

- Does not show information for restricted user accounts—only shows information for Administrator and other end-user-created accounts.
- Since there are no bay or device access restrictions, no information about bays being assigned is given.

SHOW SSHFINGERPRINT

Syntax

```
SHOW SSHFINGERPRINT
```

Description

Displays the key fingerprint of the host public key of the Enclosure Manager.

Restrictions

None

SHOW SSHKEY

Syntax

```
SHOW SSKEY
```

Description

Displays the contents of the existing ssh authorized key files (stored in NAND Flash).

Restrictions

None

SHOW PASSWORD SETTINGS

Syntax

```
SHOW PASSWORD SETTINGS
```

Description

Displays the current minimum password length and strong password settings.

Restrictions

Time functions

Because this small group of functions is used in conjunction with other groups, it is separated as its own group.

CLEAR NTP

Syntax

```
CLEAR NTP {PRIMARY | SECONDARY }
```

Description

Clears the Primary or Secondary NTP server IP address.

Restrictions

Clearing the Primary NTP address disables NTP.

DISABLE NTP

Syntax

```
DISABLE NTP
```

Description

Disables the synchronizing of time and date with a remote server using the NTP protocol. Does not clear any NTP servers that have been configured with SET NTP.

Restrictions

None

ENABLE NTP

Syntax

```
ENABLE NTP
```

Description

Enables NTP support for the Enclosure Manager.

Restrictions

None

SET DATE

Syntax

```
SET DATE MMDDhhmm
```

Description

Sets the enclosure date and time and, optionally, year and time zone. Time is in a 24-hour format. If the year or time zone parameters are omitted, the current values remain in effect. The definitions of the date parameters are:

MM: Month
DD: Day
hh: Hour (24–hour format)
mm: Minute
CC: Century
YY: Year
TZ: Time Zone (chosen from strings in Table 15 (page 139))

Table 15 Universal time zone settings

CET	Etc/GMT-2	Etc/GMT+7	Etc/GMT-13	MST
CST6CDT	Etc/GMT+2	Etc/GMT+8	Etc/GMT-14	MST7MDT
EET	Etc/GMT-3	Etc/GMT+8	Etc/Greenwich	Navajo
EST	Etc/GMT+3	Etc/GMT-9	Etc/UCT	PST8PDT
EST5EDT	Etc/GMT-4	Etc/GMT+9	Etc/Universal	UCT
Etc/GMT	Etc/GMT+4	Etc/GMT-10	Etc/UTC	Universal
Etc/GMT0	Etc/GMT-5	Etc/GMT+10	Etc/Zulu	UTC
Etc/GMT-0	Etc/GMT+5	Etc/GMT-11	GMT	WET

Table 15 Universal time zone settings *(continued)*

Etc/GMT+0	Etc/GMT-6	Etc/GMT+11	Greenwich	WSU
Etc/GMT-1	Etc/GMT+6	Etc/GMT-12	HST	Zulu
Etc/GMT+1	Etc/GMT-7	Etc/GMT+12	MET	

If you leave the time zone, century, or year blank, the current setting is reused.

Restrictions

- Date and time can only be set if NTP is disabled.
- MM is an integer from 01 to 12.
- DD is an integer from 01 to 31.
- hh is an integer from 00 to 23.
- mm is an integer from 00 to 59.
- CC is an integer from 00 to 99.
- YY is an integer from 00 to 99.

SET TIMEZONE

Syntax

```
SET TIMEZONE <timezone>
```

Description

Sets the time zone.

Restrictions

Only the choices listed in Table 15 (page 139) can be used.

SET NTP POLL

Syntax

```
SET NTP POLL <seconds>
```

Description

Sets the polling interval for NTP servers. The factory default polling interval is 720 seconds (12 minutes).

Restrictions

The polling range is 60 – 86400 seconds (1 minute to 1 day).

NOTE: EM 1.10 or later does not support this command.

SET NTP PRIMARY

Syntax

```
SET NTP PRIMARY <host>
```

Description

Sets the primary server used for synchronizing time/date using the Network Time Protocol (NTP). *<host>* can be either an IPv4 address, an IPv6 address, or a DNS name.

Restrictions

- IPv4 addresses must be in the form ###.###.###.###, where each ### ranges from 0 to 255.
- IPv6 addresses must be formed without the network prefix length.

SET NTP SECONDARY

Syntax

```
SET NTP SECONDARY <host>
```

Description

Sets the secondary server used for synchronizing time/date using the Network Time Protocol (NTP). `<host>` can be either an IPv4 address, and IPv6 address or a DNS name.

Restrictions

- IPv4 addresses must be in the form ###.###.###.###, where each ### ranges from 0 to 255.
- IPv6 addresses must be formed without the network prefix length.

Inventory and status

These commands display various inventory and global state data.

SET DISPLAY EVENTS

Syntax

```
SET DISPLAY EVENTS { ON | OFF }
```

Description

Turns on or off the displaying of events that are triggered by status changes in the system.

Restrictions

- This command is specific to the current CLI session and must be issued for each CLI session to display events in that session. (The setting is not persistent.)
- Upon boot of the EM, the event display is OFF.

SHOW ALL

Syntax

```
SHOW ALL
```

Description

Executes all `SHOW` commands in succession.

Restrictions

To save the output, you must configure your SSH software to log the session to a file or increase the history buffer size so that the output can be copied and pasted into another file.

SHOW CONFIG

Syntax

```
SHOW CONFIG
```

Description

Displays the script required to recreate the settings of the enclosure. Passwords are not included for any user.

Restrictions

None

SHOW CSR CSR-ID

Syntax

```
SHOW CSR CSR-<ID#>
```

Description

Displays the CSR event messages captured in the Enclosure Manager system log (syslog) for the specified CSR ID. The output includes the cause and action for each event message.

Restrictions

A valid ID for CSR-*<ID#>* must be used.

SHOW CSR ALL

Syntax

```
SHOW CSR ALL
```

Description

Displays all possible CSR events that can be captured in the Enclosure Manager system log (syslog) and includes the cause and action for each event.

Restrictions

None

SHOW CSR FAST

Syntax

```
SHOW CSR FAST
```

Description

Displays all possible CSR events that can be captured in the Enclosure Manager system log (syslog). The output does not include the cause and action for each event like `SHOW CSR ALL`.

Restrictions

None

SHOW DATE

Syntax

```
SHOW DATE
```

Description

Displays the current date, time, and time zone settings of the internal Real Time Clock of the Enclosure Manager.

Restrictions

None

SHOW DEVICE SERIAL_NUMBER BLADE

Syntax

```
SHOW DEVICE SERIAL_NUMBER BLADE <bay#>
```

Description

Displays the serial number of the blade specified by the bay `<bay#>`.

Restrictions

Can be used only when the enclosure power is on, the blade is present, and iLO is communicating with the EMU properly. If the enclosure power is off, the EMU has no signal from the blade to determine whether it is present, and iLO in the blade has no power to report its serial number. The EM reports "[Unknown]" if this command is used with the enclosure power off.

SHOW DISPLAY EVENTS

Syntax

```
SHOW DISPLAY EVENTS
```

Description

Displays the current status of the display event setting.

Restrictions

None

SHOW EM

Syntax

```
SHOW EM INFO
```

Description

Displays information about the Enclosure Manager.

NOTE: Hardware versions are A, B, C, and so forth. Aux info includes the change management SVN number and the health monitor PSoC firmware version number. Both are needed occasionally in lab testing environments. In production environments, the HM version may sometimes be needed, and this command is the only way to find it in EM firmware 1.0 or later.

Restrictions

None

SHOW ENCLOSURE DRIVE DRAWER

Syntax

```
SHOW ENCLOSURE DRIVE DRAWER
```

Description

Displays the state of the enclosure drive drawer. State values are Open, Closed, or Unknown.

SHOW ENCLOSURE FAN

Syntax

```
SHOW ENCLOSURE FAN { ALL | <fan number> }
```

Description

Displays information about and current status of the specified enclosure fan.

Restrictions

- The *<fan number>* must be 1 or 2.
- Fan information is not available if fan status is Dormant (meaning not powered).
- The EM is only directly controlling FAN 1. The JBOD IE expanders control FAN 2 so information on FAN 2 can only be reported if the enclosure power is on AND at least one SAS IO module is present and functioning normally.
- Not all information (for example, part number and serial number) of FAN 2 are reported to the EM by the SAS IO module so it cannot be reported as with FAN 1.
- When the enclosure power is first turned on, FAN 2 status changes from Dormant to Absent and then to the actual status when this information is given to the EM.

SHOW ENCLOSURE INFO

Syntax

```
SHOW ENCLOSURE INFO
```

Description

Displays information about the enclosure and included options.

NOTE: Some information, such as Enclosure Name, is user supplied, and if never programmed, has a default value. The Solution part number, serial number and name string are programmed in the factory depending on the software SKU that is pre-installed. These numbers and strings are not customer programmable but vary by solution SKU even if the hardware is the same type. The solution numbers, not the chassis numbers, are used for warranty obligation tracking.

Restrictions

None

SHOW ENCLOSURE POWERSUPPLY

Syntax

```
SHOW ENCLOSURE POWERSUPPLY { ALL | <bay> { , | - } <bay>}
```

Description

Displays the following general information and current status for the specified power supply or range of power supplies:

- Status (OK, Degraded, Dormant, Failed, Unnown)
- AC Input status
- Capacity: (watts)
- Current power output (watts)
- Serial Number
- Product name
- Part number
- Spare part number
- Product version. Integer value, 01, 02, and so forth.

Restrictions

None

SHOW ENCLOSURE STATUS

Syntax

```
SHOW ENCLOSURE STATUS
```

Description

Displays the basic health and status of the enclosure and its subsystems. If the enclosure shows degraded, the subsystems causing the state change are detailed (for example, failed or missing redundant module).

Restrictions

None

SHOW ENCLOSURE TEMP

Syntax

```
SHOW ENCLOSURE TEMP
```

Description

Displays current status and reading of some of the thermal sensors in the enclosure. If the sensor is unreadable due to absence of power or failure, ? is displayed.

Restrictions

- Only integral measurements in Celsius are displayed (fraction, if any, is truncated).
- Not every sensor that is present in the enclosure is reported.
- For blades a virtual ambient (not a physical) sensor temperature is displayed that is computed by iLO based on its thermal model and measurements from several sensors. This model is transparent to the EM. Until this calculation normalizes, 0 is shown as the temperature for the blade, so that right after power on of the enclosure, it takes several seconds before a nonzero value is shown for the blades while other sensors are reported immediately.

SHOW FRU

Syntax

```
SHOW FRU
```

Description

Displays summary information on field replaceable units (FRUs) within the enclosure. Information provided in this section can quickly aid the administrator in contacting HP Customer Service for troubleshooting, repair, and ordering replacements.

Restrictions

- Only displays known/live data.
- Some FRU devices are not accessible by the EM when the enclosure power is off so their information is unavailable.

SHOW IOMODULES

Syntax

```
SHOW IOMODULES
```

Description

Shows information for the IO modules within the enclosure: SAS, LOM, MEZZ, and PCIe.

Restrictions

- Should be used only when enclosure power is on.
- If enclosure power has never been turned on, no information is available. If it was on but is now off, only the firmware version of the IO modules that have firmware is shown.

SHOW RACK

Syntax

```
SHOW RACK { NAME | ID }
```

Description

Displays user-defined rack name (string) or id (0...255) that is part of the persistent EMU configuration.

Restrictions

- If rack name has not been set, it is UnnamedRack.
- If rack id has not been set, it is 0.

SHOW SERVER TEMP

Syntax

```
SHOW SERVER TEMP { ALL | <bay#>[ { , | - } <bay#>] }
```

Description

Displays temperature sensor information for the specified server or range of servers. This data is provided by iLO to the EM, which has no direct sensor access.

Restrictions

The enclosure must be powered on, otherwise, iLO has no power and cannot sense temperature or send data to the EM.

Internet control

The following commands define the EM 1.0 or later CLI functions for Internet control.

ADD EBIPA

Syntax

```
ADD EBIPA { SERVER } DNS <ip address>
```

Description

Adds an EBIPA DNS server IP address to the list of DNS servers for server bays.

Restrictions

- A maximum of three DNS servers can be added for EBIPA.
- `<ip address>` must be in the form ###.###.###.###, where each ### ranges from 0 to 255.

REMOVE EBIPA

Syntax

```
REMOVE EBIPA { SERVER } DNS <ip address>
```

Description

Removes an EBIPA (Enclosure Bay IP Addressing) DNS server IP address from the list of DNS servers for server bays.

Restrictions

`<ip address>` must be in the form ###.###.###.###, where each ### ranges from 0 to 255.

SET EBIPA

Syntax

```
SET EBIPA { SERVER } { NETMASK <netmask> | GATEWAY <gateway> | DOMAIN
"<domain name>"| <ip address> {<netmask> | [netmask] { ALL | <bay#> [{
, | - } <bay#>]} }
```

Description

Sets EBIPA settings, including starting IP address, net mask, default gateway, and domain name for the specified bay. If a bay number is not specified when setting an IP address, then both server bays are assigned an IP address in the range starting from the number entered for `<ip address>`. The keyword NONE can be used in place of `<ip address>`, `<netmask>`, or `<gateway>` to clear the IP address.

Restrictions

- *<ip address>* and *<netmask>* must be in the form ###.###.###.###, where each ### ranges from 0 to 255.
- *<domain name>* is a string containing letters (a–z, A–Z), digits (0–9), or a hyphen (-).
- *<bay#>* must be 1 or 2.

SET EM GATEWAY

Syntax

```
SET EM GATEWAY [<bay number>] <ip address>
```

Description

Sets the network default gateway. *<bay number>* is optional because there is only one EMU bay.

Restrictions

- This gateway is used only if the system is currently configured to use a static IP address rather than the DHCP protocol.
- *<ip address>* must be in the form ###.###.###.###, where each ### ranges from 0 to 255.
- 1 is the only valid value for *<bay number>* because there is no bay 2.

PING

Syntax

```
PING IPV6 [<NUMBER>] {<ipv6 address> | "<server name>"}
```

Description

Sends ICMP echo messages to a remote IPv6 device. If you omit *<NUMBER>*, or use a number larger than 9999 or one that is negative, then only four packets are sent. Packets are sent at one-second intervals to prevent congestion.

Restrictions

- *<NUMBER>* must be between 1 and 9999.
- IPv6 must be enabled.
- *<ipv6 address>* must be in the format ####:####:####::##.

SET IPCONFIG

Syntax

```
SET IPCONFIG { DHCP | STATIC | LOCAL }
```

Description

Configures EM addressing mode to be DHCP, static, or link local. The setting takes effect immediately. If mode chosen is static, other parameters are required (see below).

Restrictions

None

SET IPCONFIG STATIC

Syntax

```
SET IPCONFIG STATIC <ip address> <netmask> [<gateway>]
```

Description

Configures the IP settings for the EM to static mode. In selecting this mode, the IP address and netmask are be set to *<ip address>* and *<netmask>*, respectively. These settings take effect immediately. The gateway address will be cleared if it is omitted. Note that you can also set the gateway address using the `SET EM GATEWAY` command.

Restrictions

None

SHOW NETWORK

Syntax

```
SHOW NETWORK
```

Description

Displays the network settings of the Enclosure Manager.

Restrictions

None

SHOW EBIPA

Syntax

```
SHOW EBIPA
```

Description

Displays EBIPA configuration information.

Restrictions

EM EBIPA control only functions for the two iLO processors in the server blades.

Server management

Use the commands in this section to perform server management operations.

POWEROFF SERVER

Syntax

```
POWEROFF SERVER { ALL | <bay#>[{ , | - } <bay#>]} [FORCE]
```

Description

Sends an asynchronous request for a graceful shutdown to the server. This command returns the user to the CLI immediately but the shutdown command can take up to five minutes to complete. If the FORCE option is specified, the server blade OS is not given the opportunity to perform a graceful shutdown before power is removed. This option can cause a server blade to lose data and possibly to become unstable.

Restrictions

- *<bay#>* must be 1 or 2.
- Use of the FORCE option can cause a server blade to lose data and possibly to become unstable.

POWERON SERVER

Syntax

```
POWERON SERVER { ALL | <bay#>[{ , | - } <bay#>]} [{NORMAL | PXE | HDD
| RBSU }]
```

Description

Power on the specified server. Adding an optional boot argument forces the blade to ignore the regular boot order and forces a boot using the specified method. If no blade is in the specified bay, you are notified that the bay is empty.

Restrictions

This command functions only if the enclosure power is already on.

NOTE: Because the EMU hardware cannot determine if a blade is physically present unless enclosure power is on, the EM reports the warning that the blade is not present if this command is used when enclosure power is off.

REBOOT SERVER

Syntax

```
REBOOT SERVER { ALL | <bay#> [{ , | - } <bay#>]} [FORCE] [{NORMAL | PXE
| HDD | RBSU }]
```

Description

Sends an asynchronous request to the server to do a graceful shutdown of the OS. After the OS has had sufficient time to perform a graceful shutdown, the server blade is power cycled. If the FORCE option is specified, the server blade OS is not given the opportunity to perform a graceful shutdown before power is removed but is cleanly powered off and then immediately powered back on. The FORCE option can cause a server blade to lose data and possibly to become unstable.

Restrictions

This command functions only if the enclosure power is already on. Because the EMU hardware cannot determine if a blade is physically present unless enclosure power is on, the EM reports the warning that the blade is not present if this command is used when enclosure power is off.

SET SERVER UID

Syntax

```
SET SERVER UID { ALL | <bay#> [{ , | - } <bay#>]} { ON | OFF }
```

Description

Turns on or off the UID LED on the specified servers.

Restrictions

This command functions only if the enclosure power is already on.

NOTE: Because the EMU hardware cannot determine if a blade is physically present unless enclosure power is on, the EM reports the warning that the blade is not present if this command is used when enclosure power is off.

SET SERVER BOOT

Syntax

```
SET SERVER BOOT { FIRST | ONCE } { NORMAL | HDD | PXE | RBSU } { ALL |
<bay#> [{ , | - } <bay#>]}
```

Description

Persistently stores a setting for the IPL to be passed to the specified servers at the next reboot.

`SET SERVER BOOT FIRST` sets the boot order of the blade.

`SET SERVER BOOT ONCE` sets the boot device to be used on the next boot of the specified bay; The RBSU option is only available for `SET SERVER BOOT ONCE`.

Restrictions

- This setting is only valid on present blades and is cleared if the blade is removed.
- This command functions only if the enclosure power is already on. Because the EMU hardware cannot determine if a blade is physically present unless enclosure power is on, the EM reports the warning that the blade is not present if this command is used when enclosure power is off.

SHOW SERVER BOOT

Syntax

```
SHOW SERVER BOOT { ALL | <bay#> [{ - | , } <bay#>]}
```

Description

Displays the boot order and one-time boot device for the specified server or range of servers. These settings correspond to the server boot settings in the ROM-Based Setup Utility.

Restrictions

This command functions only if the enclosure power is already on. Because the EMU hardware cannot determine if a blade is physically present unless enclosure power is on, the EM reports the warning that the blade is not present if this command is used when enclosure power is off.

SHOW SERVER INFO

Syntax

```
SHOW SERVER INFO { ALL | <bay#>[{ , | - } <bay#>]}
```

Description

Displays a description of the server blade hardware, including the embedded NICs, the Mezz HBAs, and the management processor, in the specified bays.

Restrictions

This command functions only if the enclosure power is already on.

SHOW SERVER LIST

Syntax

```
SHOW SERVER LIST
```

Description

Displays a brief iLO and status description of all server blades. For a longer description, use `SHOW SERVER INFO`.

Restrictions

This command functions only if the enclosure power is already on. Because the EMU hardware cannot determine if a blade is physically present unless enclosure power is on, the EM reports the warning “enclosure power is off” if this command is issued when power is off.

SHOW SERVER NAMES

Syntax

```
SHOW SERVER NAMES
```

Description

Displays a brief description of all server blades.

Restrictions

This command functions only if the enclosure power is already on. If power is not on, the command responds with the message: “enclosure power is off”. If power is coming on but state exchange between iLO and EM have not normalized, some displayed information might display [Unknown] or ?.

SHOW SERVER STATUS

Syntax

```
SHOW SERVER STATUS { ALL | <bay#>[ { , | - } <bay#>] }
```

Description

Displays current status of the server blade in the specified bay or both bays.

Restrictions

This command functions only if the enclosure power is already on. Because the EMU hardware cannot determine if a blade is physically present unless enclosure power is on, the EM reports the warning “enclosure power is off” if this command is issued when power is off.

Enclosure control

The commands in the section provide various enclosure control functions.

DOWNLOAD CONFIG

Syntax

```
DOWNLOAD CONFIG <URL>
```

Description

Downloads a previously saved configuration script file from a specific IP host then executes it. This command should be used to recover configuration after replacement of a failed EMU.

Supported protocols are HTTP, FTP, and TFTP. The URL should be formatted as`protocol://host/path/file`. If your FTP server does not support anonymous connections, you can specify a username and password by replacing the host part in the above format with `username:password@host`.

Restrictions

Only IPv4 is supported in EM 1.0 or later.

POWEROFF ENCLOSURE

Syntax

```
POWEROFF ENCLOSURE
```

Description

The EM removes main DC power from the enclosure (just as if the user had pressed the enclosure power-button. Servers are NOT automatically sent a graceful shutdown command; that should be done prior to issuing this command using `POWEROFF SERVER`. Except when in script mode, the user is prompted for an explicit confirmation, which must be given, or the command is terminated.

Restrictions

None

POWERON ENCLOSURE

Syntax

```
POWERON ENCLOSURE
```

Description

The EM sends a command to the health monitor to enable main DC power (just as if the user had pressed the enclosure power button).

Restrictions

None

RESTART EM

Syntax

```
RESTART EM
```

Description

This reboots the Linux OS and restarts the EM software. It is necessary to do this command following a firmware downgrade using `UPGRADE IMAGE FORCE`. Except when in script mode, the user is prompted for an explicit confirmation, which must be given or the command is terminated.

Restrictions

None

SET EM NAME

Syntax

```
SET EM NAME "<EM name>"
```

Description

Sets the user defined string reported with SHOW EM STATUS. The system responds with confirmation of the change. The default EM name is “EM-<mac address>” where *<mac-address>* is the hardware Ethernet address for the iLO port on the EMU. For example, EM-78E7D1C12074.

Restrictions

<EM name> must be 1 to 32 characters long and includes all alphanumeric, underscore (_) , and hyphen (-) characters.

SET ENCLOSURE ASSET

Syntax

```
SET ENCLOSURE ASSET [TAG] "<asset tag>"
```

Description

Sets the enclosure asset tag that is stored persistently in the EM, displayed with `SHOW ENCLOSURE INFO` command.

Restrictions

<asset tag> must be 1 to 32 characters long and includes all alphanumeric, underscore (_) and hyphen (-) characters.

Restrictions

<id> is a decimal integer from 0 to 99.

SET ENCLOSURE NAME

Syntax

```
SET ENCLOSURE NAME "<enclosure name>"
```

Description

Sets the persistent enclosure name stored in the EM. This name is displayed with `SHOW ENCLOSURE INFO` command. The default (unset by user) value is ‘UnnamedEnclosure’.

Restrictions

<enclosure name> must be 1 to 32 characters long and includes all alphanumeric, underscore (_), and hyphen (-) characters.

SET ENCLOSURE UID

Syntax

```
SET ENCLOSURE UID { ON | OFF | SLOW | FAST }
```

Description

Sets the blue enclosure UID. The enclosure has a UID on both the front and rear of the enclosure. However, the front UID is only lit when enclosure power is on, while the rear UID is only lit when

standby power is on. The Unit Identification LED displays as steady on, off, or one of two blinking speeds. The system confirms the operation. There is no particular meaning to SLOW or FAST.

Restrictions

Blinking rates are not user definable. SLOW is 1 Hz; FAST is 2 Hz.

SET FACTORY

Syntax

```
SET FACTORY
```

Description

Restores configuration settings back to the factory defaults, including deleting any created user accounts, except for the Administrator password, which remains unmodified. The EM restarts after restoring the configuration settings. If the enclosure power is on, the iLOs are reset (to force a refresh of the enclosure information passed to iLO).

Restrictions

None

SET RACK NAME

Syntax

```
SET RACK NAME "<rack name>"
```

Description

Sets the user-defined string reported with `SHOW RACK NAME` command. The system responds with confirmation of the change. The default (unset by user) rack name is 'UnnamedRack'.

Restrictions

<rack name> must be 1 to 32 characters long and includes all alphanumeric, underscore (_), and hyphen (-) characters.

UPDATE IMAGE

Syntax

```
UPDATE IMAGE { [ FORCE ] <URL> }
```

Description

Downloads a new EM firmware image from the network and uses it to update the Enclosure Manager's firmware. Supported protocols are HTTP, FTP, and TFTP. The EM validates the image before performing the update. Unless the session is in script mode, the EM requests confirmation before performing the update.

After update, the EM is restarted unless the FORCE operation was used in which case a manual invocation of `RESTART EM` is necessary to reboot the new firmware.

Restrictions

- *<URL>*should be formatted as: `protocol://host/path/filename`.
- Host is a fully qualified domain name or an IPv4 address.
- `path/filename` is the pathname of the file to download.
- Use FORCE to allow downgrading firmware even if settings/passwords may be lost.

UPLOAD CONFIG

Syntax

```
UPLOAD CONFIG {<URL>}
```

Description

Uploads a script to the specified URL, which duplicates the current runtime configuration. Supported protocols are FTP and TFTP. The URL should be formatted as: `protocol://host/path/filename`. If your FTP server does not support anonymous logins, you can specify a username and password within the URL formatted as: `ftp://username:password@host/path/filename`

Restrictions

Only IPv4 is supported in EM version 1.0 or later.

Forensic

The following set of forensically useful functions is supported by the EM CLI.

CLEAR SYSLOG

Syntax

```
CLEAR SYSLOG [ EM | ENCLOSURE ]
```

Description

Completely erases the local syslog of the Enclosure Manager. The EM prompts the user for confirmation because once deleted, this information cannot be recovered.

Restrictions

Only deletes the syslog stored inside the EM itself; it does not delete the remote syslog, if remote logging is enabled.

DISABLE SYSLOG REMOTE

Syntax

```
DISABLE SYSLOG REMOTE
```

Description

Disables remote system logging.

Restrictions

None

ENABLE SYSLOG REMOTE

Syntax

```
ENABLE SYSLOG REMOTE
```

Description

Enables remote system logging.

Restrictions

The remote system log server address must be configured before enabling remote system logging.

SET REMOTE SYSLOG PORT

Syntax

```
SET REMOTE SYSLOG PORT <port>
```

Description

Sets the UDP destination port for remote system logging.

Restrictions

- The default remote system logging port is 514.
- *<port>* must be a number between 1 and 65535.
- Settings are not used unless remote system logging is enabled.

SET REMOTE SYSLOG SERVER

Syntax

```
SET REMOTE SYSLOG SERVER { <IPv4> | <dns name>}
```

Description

Sets the IP address of a remote system log server.

Restrictions

- EM 1.0 only supports IPv4.
- Settings are not used unless remote system logging is enabled.

SHOW SYSLOG EM

Syntax

```
SHOW SYSLOG EM
```

Description

Displays the local syslog for the Enclosure Manager.

Restrictions

None

SHOW SYSLOG SERVER

Syntax

```
SHOW SYSLOG SERVER <bay#>
```

Description

Displays the syslog for the specified server. If the session is not in script mode, the EM paged the display of the output to throttle output and give the user time to view the data. iLO syslog data is formatted in XML.

Restrictions

- *<bay#>* must be 1 or 2.
- This command can only function if enclosure power is on. Because the EMU hardware cannot determine if a blade is physically present unless enclosure power is on, the EM reports the warning "Could not determine the IP address of the management processor for blade" if this command is issued when power is off.

SHOW SYSLOG SETTINGS

Syntax

```
SHOW SYSLOG SETTINGS
```

Description

Displays the remote syslog settings (enabled/disabled status, IP address, Port#) for the Enclosure Manager.

Restrictions

None

TEST SYSLOG

Syntax

```
TEST SYSLOG
```

Description

Tests the remote system log settings by logging a test message to the remote syslog. The test message also appears in the local EM system log.

Restrictions

Only functions if remote syslog is enabled.

Session

Interacting with the EM via the CLI requires a login-initiated session. A session represents a transient context which has a state that can be explicitly controlled by the user. This section describes commands for managing session state and behavior.

CLEAR SCREEN

Syntax

```
CLEAR SCREEN
```

Description

Clears the terminal screen.

Restrictions

None

CONNECT SERVER

Syntax

```
CONNECT SERVER <bay#>
```

Description

Opens a Text Console session to the iLO specified by the server bay number. Exit from the session with 'exit'.

Restrictions

This command can function only if enclosure power is on and a blade server is present. Because the EMU hardware cannot determine if a blade is physically present unless enclosure power is on, the EM reports the warning "The blade is not present." if this command is issued when enclosure power is off.

EXIT

Syntax

```
EXIT | LOGOUT | QUIT
```

Description

Exit the Command Line Interpreter.

Restrictions

None

HELP

Syntax

```
HELP [<command>]
```

Description

Show Help messages for or list the top-level commands if no arguments are provided. Arguments listed in braces ({ }) and separated by the pipe symbol (|) are mutually exclusive choices. Arguments listed in square brackets ([ ]) are optional arguments and can be omitted. Fields listed in angle brackets (< >) should be replaced with the value indicated.

Restrictions

None

HISTORY

Syntax

```
HISTORY
```

Description

Shows the history of commands for the current session.

Restrictions

None

SET SCRIPT

Syntax

```
SET SCRIPT [MODE] { ON | OFF }
```

Description

Sets script mode on or off. script mode prevents commands from prompting for input or confirmation. All actions are performed without confirmation. Default values are used for any parameters that normally require user interaction. This setting is only effective for the current CLI session.

Restrictions

The ADD USER command must have a password argument if executed in script mode.

SET SESSION TIMEOUT

Syntax

```
SET SESSION TIMEOUT <timeout>
```

Description

Sets the number of minutes before insessions are removed. Valid session timeout. Please note: If the session timeout value is lowered, currently insessions may be removed. The default timeout is 1,440 minutes.

Restrictions

<timeout> must be in the range from 10 to 1,440 minutes (24 hours). The session timeout can be disabled by setting it to zero.

SHOW SESSION TIMEOUT

Syntax

```
SHOW SESSION TIMEOUT
```

Description

Displays the current Enclosure Manager user session timeout. The session timeout is the number of minutes before insessions are removed.

Restrictions

None

SLEEP

Syntax

```
SLEEP <seconds>
```

Description

Pauses the session for a fixed period of time. Useful for adding delays to scripts. The *<seconds>* parameter can be any whole number from 1 to 86400.

NOTE: Once the pause begins, there is no way to continue the session before time runs out, but you can always terminate the session (from the client end) and start another one.

Restrictions

The *<seconds>* parameter can be any whole number from 1 to 86400.

Using the Enclosure Manager physical interface

The primary interface to the Enclosure Manager is the Ethernet LAN port, which is intended for remote management of the enclosure. AC power is applied to the enclosure so that auxiliary power is available to the EMU. The enclosure may or may not be powered on. Solution software may or may not be installed.

Manual button functions

IMPORTANT: Use the following manual button functions only with the assistance of HP Technical Support.

The two manual buttons and a two-digit LED display on the EM provide basic management functions when the EM is not connected to the network. Figure 150 (page 161) illustrates the physical (touch/visual) interaction elements.

Figure 150 EM Physical Interface

Activate Button Menu

You cannot manage the EM using a remote management interface because the system is not connected to the LAN, the LAN interface is not functioning properly, or management software is not installed or available.

To activate the button menu:

1. Press and hold the UP (right) button until the two digits display "- -".
2. Release the UP button. System displays two underscores "_ _":

This display indicates context is at the bottom of the menu range and is awaiting menu selection, which requires pressing the UP button one or more times.

Reboot EM (bE)

The EM LAN interface is not responding to the remote management software but is configured to do so, or the EM has just been reconfigured and needs to be rebooted for the configuration to take effect.

To reboot the EM:

1. Enter the menu mode using the "Activate Button Menu" (page 161).
2. Press the UP button one time.

   The EM changes the display from "_ _" to "bE" to indicate that menu choice 0 (Reboot) is selected.
3. Press and hold the UP button for three seconds.

   The system blinks (or flashes) the two "bE" for one second to acknowledge the selection.
4. Release the UP button.

   The system then reboots the EM. This event is logged in the system log. The display shows "- -" during the reboot. The module fault LED flashes. When the reboot is complete, the EM green health LED is lit steady, and the enclosure ID is displayed on the two digits.

Restore Factory Defaults (Fd)

You might be replacing an EM or reconfiguring a messaging system. The action resets the EMU address to a link local IP address (not the factory default).

To restore factory defaults:

1. Enter the menu mode using the "Activate Button Menu" (page 161).
2. Press the UP button until the display changes from "_ _" to "Fd".
3. Press and hold the UP button for three seconds.

   The EM blinks (or flashes) "Fd" three times to acknowledge the selection.
4. Release the UP button.

   The system stops flashing the pattern, internally restores all configurations to factory defaults, and reboots the EM.

Recover Lost Password (Fp)

You changed the Administrator password from the default password set by the factory, and then lost or forgot the new password.

To recover a lost password:

1. Enter the menu mode using the "Activate Button Menu" (page 161).
2. Press the UP button until the display changes from "_ _" to "Fp".
3. Press and hold the UP button for three seconds.

   The EM blinks (or flashes) "Fp" to acknowledge the selection.
4. Release the UP button.

   The system stops flashing "Fp". The system restores the Administrator password from hardware and logs the event in the syslog. The system displays the Enclosure ID to indicate that the operation is complete.

Set DHCP IP Address (dH)

Reconfigure the messaging system for a different network where IP address assignment is handled dynamically.

To set a DHCP IP address:

1. Enter the menu mode using the "Activate Button Menu" (page 161).
2. Press the UP button until the display changes from "_ _" to "dH".
3. Press and hold the UP button for three seconds.

   The EM flashes "dH" to acknowledge the selection.
4. Release the UP button.

   The system sets the EM to DHCP and exits the menu mode. This event is also logged in the EM syslog and takes effect immediately. The system displays the Enclosure ID to indicate that the operation is complete.

Set Link Local IP Address (LL)

Reconfigure the messaging system for a network where IP address assignment is static.

To set a static IP address:

1. Enter the menu mode using the "Activate Button Menu" (page 161).
2. Press the UP button until the display changes from "_ _" to "LL".
3. Press and hold the UP button for three seconds.

   The EM flashes "LL" to acknowledge the selection.

4. Release the UP button.

   The system sets the EM to Link local mode and exits the menu mode. This event is also logged in the EM syslog and takes effect immediately. The system displays the Enclosure ID to indicate that the operation is complete.

Display Current IP Address (IP)

Learn the IP address of the EM.

To find the current IP address:

1. Enter the menu mode using the "Activate Button Menu" (page 161).
2. Press the UP button until the display changes from "_ _" to "IP".
3. Press and hold the UP button for three seconds.

   The EM displays "IP" to acknowledge the selection.
4. Release the UP button.

   The system enters the 'Display IP' subfunction and displays the first octet of the IPv4 address being used by the EM.
5. Press the UP button three times to scroll through the other three octets of the EM IP address. You can back up using the DOWN button.
6. Press and hold the DOWN button for three seconds.

   The EM flashes "IP" to acknowledge the selection, and then exits the operation. The system displays the Enclosure ID to indicate that the operation is complete.

Exit Button Menu

Exit the main menu (or any subfunction).

To exit the button menu:

Press and hold the DOWN button for three seconds.

The system displays and flashes the two hyphens ("- -") three times to indicate the menu was exited. The system then returns the LEDs to the original display state showing the Enclosure ID.

B E5000 Error Codes

E5000 Configuration Wizard

Error Code	Description	Resolution
1538	Unhandled Error	See the error message for details. Contact HP support and provide these details.
1539	Unhandled Internal Error	See the error message for details. Contact HP support and provide these details.
1540	Error determining the name of a Failing diagnostic	See the error message for details. Contact HP support and provide these details.
1541	Error determining the name of a Passing diagnostic	See the error message for details. Contact HP support and provide these details.
1542	Error determining the tasks the E5000 Configuration Wizard needs to perform	See the error message for details. Contact HP support and provide these details.
1543	Error determining the Storage tasks the E5000 Configuration Wizard needs to perform	See the error message for details. Contact HP support and provide these details.
1544	Error determining the Pre-Provisioning tasks the E5000 Configuration Wizard needs to perform	See the error message for details. Contact HP support and provide these details.
1545	Error determining the Post-Provisioning tasks the E5000 Configuration Wizard needs to perform	See the error message for details. Contact HP support and provide these details.
1546	Error during attempt to set the Net Connection ID of a Network Adapter	See the error message for details. Contact HP support and provide these details.
1547	Error during attempt to set the Net Connection ID for the Replication Network Adapter	See the error message for details. Contact HP support and provide these details.
1548	Error obtaining a list of Network Adapters	See the error message for details. Contact HP support and provide these details.
1549	Error Windows Command	Refer to the error message for details that will accompany this message. Verify that the account being run from has the correct permissions.
1550	Error configuring the Replication Network Adapter	Refer to Microsoft documentation using the error number in the message for help in troubleshooting the failure. Verify that another Network Adapter does not have the same IP Address.
1551	Error clearing the Gateway for the Replication Network Adapter	Refer to Microsoft documentation using the error number in the message for help in troubleshooting the failure.
1552	Error obtaining System Memory values	Refer to the error message for details that will accompany this message. Contact HP support and provide these details.
1553	Error creating directory, Mounting Volume or obtaining the Drive Count	Refer to the error message for details that will accompany this message. If the error was in creating a directory, verify that the account being run from has the correct permissions. Contact HP Support and provide details.
1554	Error refreshing Drive List or Volume List	Refer to the error message for details that will accompany this message. Verify that HP CMP is installed and that the Service HP CMP is started.
1555	Error obtaining storage profiles	Refer to the error message for details that will accompany this message. Verify that HP CMP is installed and that the Service HP CMP is started.

Error Code	Description	Resolution
1556	Error creating Sandbox Commit Service	Refer to the error message for details that will accompany this message. Contact HP support and provide these details.
1557	Error joining Domain or Workgroup	Refer to Microsoft documentation using the error number in the message for help in troubleshooting the failure.
1558	Error joining Domain or Workgroup	Refer to Microsoft documentation using the error number in the message for help in troubleshooting the failure.
1559	Error disconnecting from Domain or Workgroup	Refer to Microsoft documentation using the error number in the message for help in troubleshooting the failure.
1560	Error renaming System	Refer to the error message for details that will accompany this message. Verify that the account being run from has the correct permissions.
1561	Error configuring Network Adapter whose ID appears in the error message	Refer to Microsoft documentation using the error number in the message for help in understanding the failure.
1562	Error pinging the Enclosure Manager Unit	Refer to the error message for details that will accompany this message. Verify that the network address of the EMU is set up correctly and that it is cabled correctly.
1563	Error generating public and private keys for the Enclosure Management Unit	Refer to the error message for details that will accompany this message. Contact HP support and provide these details.
1564	Error connecting to the Enclosure Management Unit	Refer to Microsoft documentation using the error number in the message for help in understanding the failure.
1565	StorageRequirementsUnmet Error connecting to the Enclosure Management Unit	Refer to the error message for details that will accompany this message. Verify that the account being run from has the correct permissions. Also verify that the network address of the EM is set up correctly and that it is cabled correctly.
1566	Error creating Model Share folder	Refer to the error message for details that will accompany this message. Storage requirements could not be met.
1567	Error creating Model Share folder	Refer to the error message for details this will accompany this message. Verify that the account being run from has the correct permissions.
1568	Error checking drives	An attempt was made to check drives because the number of drives found was less than the minimum drive count for this product. Check the condition of all drives.
1569	Error launching program HPEMCONFIG	Refer to the error message for details that will accompany this message. Verify that the account being run from has the correct permissions. Verify via the Control Panel that HP Enclosure Manager Settings is installed.
1570	Error running a diagnostic	Refer to the error message for details that will accompany this message. Verify that HP CMP is installed and that the Service HP CMP is started.
1571	A LUN is presented to both Servers	A LUN is only allowed to be presented to one server at a time. Contact HP support and provide these details.
1572	Error attempting to provision storage	No storage was available to provision using the listed profile. All storage may not be provisioned.
1573	Not used	
1574	Not used	
1575	Error running Alert Emails script	The script specified in the error message failed to execute properly. Retry the operation. If the operation continues to fail contact HP support and provide these details.

Error Code	Description	Resolution
1576	Unhandled exception on the Alert Emails configuration page	See the error message for details. Contact HP support and provide these details.
1577	Error saving Alert Emails information	The information was not successfully written to the file specified in the error message. Retry the operation. If the operation continues to fail contact HP support and provide these details.
1578	Error copying or removing Alert Emails information	The file specified in the error message failed to be deleted or overwritten by a newer version. Retry the operation. If the operation continues to fail contact HP support and provide these details.
1579	Error sending a test email	There was a problem successfully sending a test email to the address specified. If Exchange has not been deployed on this server and the email address specified does not yet exist this operation will fail. Retry the operation after Exchange has been deployed via the Alert Emails snap-in in Server Manager.
1580	Not used	
1581	Not used	
1582	Not used	
1583	Error finding provisioning file	A valid provisioning file was not returned. Verify that HP CMP is installed and that the Service HP CMP is started.
1584	Error attempting to remove local Raid0 LUN	The requested operation to remove the local Raid0 Recovery LUN was unsuccessful. If a retry fails please contact HP support and provide these details.
1585	Error attempting to remove Server blade 2's Raid0 LUN	The requested operation to remove the local Raid0 Recovery LUN was unsuccessful. If a retry fails please contact HP support and provide these details.

System Manager

Error Code	Description	Resolution
257	The EM key has not been generated yet.	Run the E5000 Configuration Wizard to completion.
258	Exchange related WMI query failed.	Verify that Exchange is installed and running via the Exchange Management Console, located in Programs\Microsoft Exchange Server 2010\Exchange Management Console.
259	Query for serial number failed	Verify that there is communication with the EMU.
260	Service Registry Key not Found. Possible re-purposing of the server.	Verify that the E5000 System Validation Service is installed and running.
261	(Warning) High-level WMI Enclosure queries fail. Possible EM provider issue.	Call HP Support.
262	Class specific enclosure queries fail. Could be timing or problem with specific class.	Call HP Support.
263	(Warning) High-level WMI System queries fail. Possible System provider issue	Check the SMH for Hardware status and, if the components are missing, verify that the WEBM Providers are installed.
264	Class specific system query failed. Could be timing or problem with specific class.	Check the SMH and verify that all hardware components are reporting a status. Any missing components could be offline or failing.
265	(Warning) High-level WMI Storage queries fail. Possible System provider issue	Call HP Support.

Error Code	Description	Resolution
266	Class specific storage query failed. Could be timing or problem with specific class.	Call HP Support.
267	RunDiags ESEVTray Log file missing	Verify that System Status is running by checking the status tray icons in the lower right corner of the window. If the icon is not displayed, the application is not installed.
268	RunDiags ESEVService Log file missing	Verify that the E5000 System Validation Service is installed and running.
269	CMP Diags file failed to run.	Verify that CMP Diagnostics is installed.
270	HPSReports failed to run	Verify that HPSReports is installed.
271	Exch diags failed to run	Verify that Exchange Diagnostics is installed.
272	InnerException in GetVersion – the Product ID for this system is not available	Ensure that the product ID has not been repurposed and that the ID is correct in the BIOS ROM.
273	Exception in GetComponentList – possible format error in `UpgradeNeeded.xml`	Verify that the `UpgradeNeeded.xml` file is located in the `C:\Program Files (x86)\Hewlett-Packard\E5000\HP Firmware Update Tool\` directory. Open the file in a browser to check the format.
274	InnerException in updateUpgradeStatus – possible format error in `UpgradeCompleted.xml`	Verify that the `UpgradeCompleted.xml` file is located in the `C:\Program Files (x86)\Hewlett-Packard\E5000\HP Firmware Update Tool\` directory. Open the file in a browser to check the format.
275	(W) TheadAbortException in fwNext – FWUpdateTool was running and did not exit cleanly	Verify that the `hpFWUpdateTool_log.txt` file is located in the `C:\ProgramData\Hewlett-Packard\logs\` directory. View the last entry in the file to determine what happened.
276	TheadAbortException in fwRetry – FWUpdateTool could not start	Open the Task Manager, select the **Process** tab and select the name field to sort alphabetically. Scroll through the list of processes to determine if another instance of `FwUpdateTool.exe` is running. If it is, wait until that instance has finished.

E5000 Exchange Deployment Tool

NOTE: The third digit of each error code indicates which phase was running when the error occurred.

If you must reset the Exchange Deployment Tool phase (1-6), the key to be edited is stored in:
`Registry: HKLM:\Software\Hewlett-Packard -key name MercuryDeployStatus`

Error Code	Phase	Description	Resolution
1111	1 – Jetstress	EDT Error: Expected VOL mismatch. VOL$i not found.	Verify that `C:\ExchangeDatabases\VOLx` exists (disks are online). You may need to replace physical disks and then re-run the E5000 Configuration Wizard and the Exchange Deployment Tool.
1122	2- Exchange Tools install	Exchange Tools NOT installed - please check `C:\ExchangeSetupLogs` for details.	Check `C:\ExchangeSetupLogs` to determine why Microsoft Exchange failed to install the administrator tools. This is an Exchange Setup error, not an Exchange Deployment Tool error.

Error Code	Phase	Description	Resolution
1141	2- Exchange Tools install, 3- Setup prep, 4- Exchange Setup	EDT Error: Expected VOL mismatch. VOL$i not found.	Verify that `C:\ExchangeDatabases\VOLx` exists (disks are online). You may need to replace physical disks and then re-run the E5000 Configuration Wizard and the Exchange Deployment Tool.
1142	4- Exchange Setup	EDT Error: Exchange did NOT install, check `C:\ExchangeSetupLogs\ExchangeSetup.log` for full details.	Check `C:\ExchangeSetupLogs` to determine why Microsoft Exchange failed to install the administrator tools. This is an Exchange Setup error, not an Exchange Deployment Tool error.
1143	4- Exchange Setup	EDT Error: Enterprise Edition license required for this configuration (more than 5 databases).	A dialog box should appear and prompt you to re-enter the license key. You can also proceed with the setup and address the license key issue later. For more information, see "set-ExchangeServer" on TechNet.
1151	5- Exchange post-setup (config)	EDT Error: Expected VOL mismatch. VOL$i not found.	Verify that `C:\ExchangeDatabases\VOLx` exists (disks are online). You may need to replace physical disks and then re-run the E5000 Configuration Wizard and the Exchange Deployment Tool.
1152	5- Exchange post-setup (config)	EDT Error: Exchange is NOT installed, check `C:\ExchangeSetupLogs\ExchangeSetup.log` for full details.	Check `C:\ExchangeSetupLogs` to determine why Microsoft Exchange failed to install. The Exchange Deployment Tool has stopped because it detects that the previous phases have not been completed. View the error log using the button in the Exchange Deployment Tool.
1154	5- Exchange post-setup (config)	EDT Error: Cannot join DAG -	Check input and see http://go.microsoft.com/?linkid=9751386 for more information. View the error log using the button in the Exchange Deployment Tool.
1155	5- Exchange post-setup (config)	Error: Cannot create DAG -	Check input (e.g., Witness Server) and see http://go.microsoft.com/?linkid=9751386 for more information. View the error log using the button in the Exchange Deployment Tool.
1156	5- Exchange post-setup (config)	EDT Error: `$localserver` Did not join `$DAGname` -	Check `C:\ExchangeSetupLogs\DagTasks` log and see http://go.microsoft.com/?linkid=9751386 for more information. View the error log using the button in the Exchange Deployment Tool.
1157	5- Exchange post-setup (config)	Error: Exchange Server `$server1name` NOT valid. Verify your inputs.	Check that the first server is correctly installed. This occurs on the second server.
1162	6- EDT exit (to ExBPA)	EDT Error: Exchange is NOT installed, check `C:\ExchangeSetupLogs\ExchangeSetup.log` for full details.	Check `C:\ExchangeSetupLogs` to determine why Microsoft Exchange failed to install. The Exchange Deployment Tool has stopped because it detects that the previous phases have not been completed. View the error log using the button in the Exchange Deployment Tool.

Firmware Update

Error Code	Description	Resolution
2048	(W) Error deleting file `UpgradeSelected.xml`.	See the error message for details. The `UpgradeSelected.xml` file must be deleted after a firmware upgrade has completed for discovery to work correctly. The file is located in `C:\`

Error Code	Description	Resolution
		`Program Files (x86)\Hewlett-Packard\E5000\HP Firmware Update Tool\.`
2049	(W) Error opening file `UpgradeSelected.xml`.	See the error message for details. The `UpgradeSelected.xml` file must be opened and read for a firmware upgrade to occur. Open the file in Internet Explorer or a similar browser to check the format. This will also validate that the file exists and can be opened. Otherwise, delete the file, which is located in `C:\Program Files (x86)\Hewlett-Packard\E5000\HP Firmware Update Tool\`.
2050	(I)Error clearing components from the list of components needing upgrade.	See the error message for details. This list must be cleared so that duplicate entries are not displayed after a discovery. No action required.
2051	Error processing discovery information from CMP service	See the error message for details. There was a problem processing data returned during the discovery operation. Apply the suggestion displayed in the E5000 System Manager to resolve the issue.
2052	Error communicating with CMP service to get discovery information	See the error message for details. There was a problem communicating with CMP to start the discovery operation. Validate that the HP CMP service is started. Using the Control Panel, verify that the HP CMP Firmware is installed.
2053	(I) Error response from HP CMP service while getting discovery information	The HP CMP service encountered an error. Troubleshoot the CMP error. Details can be found in the file `C:\ProgramData\Hewlett-Packard\logs\hpFWUpdateTool_log.txt`.
2054	Error processing data returned from the firmware upgrade operation	See the error message for details. There was a problem processing data returned during a firmware upgrade. Apply the suggestion displayed in the E5000 System Manager to resolve.
2055	Error communicating with CMP during an upgrade operation	See the error message for details. There was a problem communicating with CMP to start the upgrade. Validate that the HP CMP service is started. Using the Control Panel, verify that the HP CMP Firmware is installed.
2056	Error response from CMP during an upgrade operation	The CMP service encountered an error. View the CMP error details in the file `C:\ProgramData\Hewlett-Packard\logs\hpFWUpdateTool_log.txt`. The component's firmware may not have been upgraded.
2057	Error sending data to CMP Service during firmware upgrade.	See the error message for details. There was a problem sending data to CMP during an upgrade. Apply the suggestion displayed in the E5000 System Manager to resolve.
2058	Web Error on POST Request in upgradeComponent.	See the error message for details. There was a problem communicating with CMP to start the upgrade. Verify that the HP CMP service is started. Using the Control Panel, verify that the HP CMP Firmware is installed.
2059	(I) Error in RespCallBack.	Reserved for future use.
2060	(I) Web Error in RespCallBack.	Reserved for future use.
2061	(I) Error in ReadCallBack.	Reserved for future use.
2062	(I) Web Error in ReadCallBack.	Reserved for future use.
2063	(I) Error in SearchAllDevices.	Reserved for future use.
2064	Error received in response to Upgrade request in upgradeComponent.	See the error message for details. There was a problem processing data returned during the discovery operation. Apply the suggestion displayed in the E5000 System Manager to resolve the issue.

Error Code	Description	Resolution
2065	(I) Error clearing components from list to check health status prior to upgrade	See the error message for details. This list must be cleared to force a discovery. No action required.
2066	(I) Error removing a component from list to check health status prior to upgrade.	See the error message for details. An entry on this list must be removed to prevent an attempt to upgrade a failed component. No action required.
2067	XML Error in getComponents.	See the error message for details. View the `hpFWUpdateTool_log.txt` file, located in `C:\ProgramData\Hewlett-Packard\logs\`. Open the file in Internet Explorer or a similar browser to check the format.
2068	(W) Warning in response to Upgrade request in upgradeComponent.	See the error message for details. There was a problem processing data returned during the discovery operation. Apply the suggestion displayed in the E5000 System Manager to resolve the issue.
2069	(I) Informational in response to Upgrade request in upgradeComponent	See the error message for details. There was a problem processing data returned during the discovery operation. No action is necessary.

Enclosure Manager Settings

Error Code	Description	Resolution
1792	Unhandled Error	See the error message for details. Contact HP support and provide these details.
1793	Error connecting to the Enclosure Management Unit	See the error message for details. Verify that the account being used has the correct permissions. Verify that the network address of the EMU is set up correctly and that it is cabled correctly.
1794	Error obtaining properties of the Enclosure Management Unit	See the error message for details. Verify that all HP Providers are installed and are accessible. Also verify that the network address of the EMU is set up correctly and that it is cabled correctly.
1795	Error generating new public and private keys for the Enclosure Management Unit	See the error message for details. Contact HP support and provide these details.
1796	Error connecting to the Enclosure Management Unit	Using the error number in the message, see the Microsoft documentation for help in troubleshooting the failure.
1797	Not used	
1798	Error completing connection to Enclosure Management Unit	See the error message for details. Verify that the account being used has the correct permissions. Verify that the network address of the EMU is is set up correctly and that it is cabled correctly.

Storage Viewer

Error Code	Description	Resolution
3072	Unhandled Error	See the error message for details. Try restarting the tool or see the event logs, application logs, and user guide for troubleshooting information. Verify that CCU is installed by checking the `C:\Program Files\hp\ccu\lib`. Verify

Error Code	Description	Resolution
		that there are no unsupported enclosures attached. The supported enclosures are D2600 and D2700.
3073	Error discovering LUNs or Volume list and Drive list	See the error message for details or the Windows event logs for any further information. Verify that the storage controller is not locked up; if so, restarting the server may resolve the problem. If an enclosure other than a D2600 or D2700 is attached to the system, no LUNs or drives will be discovered. Ensure that a supported enclosure is present.

Recovery LUN Manager

Error Code	Description	Resolution
2816	Unhandled Error	Try restarting the tool or see the event logs, application logs, and user guide for troubleshooting information.
2817	Error discovering RAID1 recovery LUN	See the error message for details or the Windows event logs for any further information. Verify that the storage controller is not locked up; if so, restarting the server may resolve the problem.
2818	Error deleting partition	See the error message for details or the Windows event logs for any further information. Verify that the partition is visible in Windows Explorer or the Disk Management snap-in and verify that the partition is online.
2819	Error revoking access to recovery LUN on this server	See the error message for details or the Windows event logs for any further information. Try the refresh and decommission actions again.
2820	Error creating partition	See the error message for details or the Windows event logs for any further information. Try the refresh and decommission actions again. Using My Computer, verify that the `R:\` partition is created.
2821	Error granting access to recovery LUN	See the error message for details or the Windows event logs for any further information. Try the refresh and decommission actions again.

CSP WBEM Providers

Error Code	Description	EventLogEntryType	Resolution
2320	The CSP Enclosure Provider is initializing.	Informational	Retry query to provider after three minutes.
2321	CSP Enclosure Provider initialization successful.	Success	
2322	Enclosure Provider lost connection with EM. Fan, Power supply and IO/PCIe Modules classes will not work.	Warning	Check Enclosure Manager connections and retry query to provider after three minutes.

Error Code	Description	EventLogEntryType	Resolution
2323	Enclosure Provider is unable to parse the input data provided by EM. 1. Fan, Power supply and IO/PCIe Module classes will not work. 2. Blade classes may give only partial data.	Warning	Check the provider logs for details. Retry query to provider after three minutes.
2324	Enclosure Provider is unable to build internal lists using data provided by EM.	Warning	Check the provider logs for details.
2325	Enclosure provider is not recognizing this blade server. Many or all the classes may fail.	Error	Check the provider logs for details.
2326	Enclosure provider is unable to build internal lists. Blade classes may fail.	Error	Check the provider logs for details.
2327	Enclosure provider is unable to connect to health driver. Many or all classes may fail.	Error	Check the provider logs for details and report to the Support Team.
2336	The CSP Storage Provider is initializing.	Informational	Retry query to provider after three minutes.
2337	CSP Storage Provider initialization successful.	Success	
2338	CSP Storage provider does not give instances for top level class `HP_CCStorageSystem`.	Warning	Retry query to provider after three minutes.
2339	Unable to find the Default Namespace for Storage Provider.	Warning	Retry query to provider after 3 minutes. If retry fails report to the Support Team.
2340	Querying the top level class `HP_CCStorageSystem` failed in CSP Storage Provider.	Error	Retry query to provider after three minutes. If retry fails, report to the Support Team.
2352	The CSP Server Provider is initializing.	Informational	
2353	CSP Server Provider initialization successful.	Success	
2354	CSP Server provider does not give instances for top level class `HP_WinComputerSystem`.	Warning	Check the provider logs for details.
2356	Querying the top level class `HP_WinComputerSystem` failed in CSP Server Provider.	Error	Check the provider logs for details.

CMP

Error Code	Description	Type/ Severity	Root cause	Resolution
0X1A01	Repository file %s does not exist.	Error/ Critical	The Repository.xml file is either missing from the `C:\ProgramData\Hewlett-Packard\CMP\Firmware`	Reinstall the firmware bundle as follows: 1. Use the Uninstall Programs wizard in Control Panel to
0X1A02	Repository file %s is not readable	Error/ Critical		

Error Code	Description	Type/ Severity	Root cause	Resolution
			directory or permissions are not configured properly on this file.	remove the current firmware bundle. 2. Install the `HP_CMP_FW` MSI file, which is located in the `C:\hpnas\Components\CMP` directory.
0X1A03	Error processing `Repository.xml` - please check that this file is well-formed XML	Error/ Critical	The `Repository.xml` file is corrupted.	
0X1A04	Smart Component file described in repository does not exist or is not readable: %s	Error/ Critical	One or more Smart Components (SC) is missing from the `C:\ProgramData\Hewlett-Packard\CMP\Firmware` directory.	
0X1A0D	Error processing Repository file %s: version not compatible	Error/ Critical	The Version tag of the `Repository.xml` file is not compatible. This occurs when the `Repository.xml` file is corrupted.	
0X1A05	Smart Component discovery failed for %s using %s: unable to create temp directory %s	Error/ Critical	These error message may display if there is a problem creating or reading a temporary file/directory that is used for the discovery/flash operation for some Smart Components.	1. Check the logs for more information. 2. Free up space or set the correct permissions on the temporary directory mentioned in the error message. 3. Retry the discovery/flash operation.
0X1A06	Smart Component discovery failed for %s using %s: error reading the discovery file: %s. Check the log (%s in %s) for more information	Error/ Critical		
0X1A0F	Smart Component discovery failed for %s using %s: discovery file not created: %s. Check log file %s for more information	Error/ Critical		
0x1027	Flash not attempted for %s using %s: unable to create temporary directory %s.	Error/ Critical		
0X1A07	Internal CMP error - see the log file (%s in %s) for more information.	Error/ Critical	An internal error occurred during the discovery/flash operation, due to Smart Component execution failures or an unexpected response from the Smart Components. Also, the tool might have encountered an error condition that aborted the operation.	Check the logs for more information and proceed accordingly.
0X1A08	Internal CMP error - see log file (%s) for more information	Error/ Critical		
0x1020	Flash not attempted using %s: Internal CMP error - see log file (%s) for more information.	Error/ Critical		
0x1A10	Smart Component discovery failed for %s using %s: invalid response from Smart Component. Check the log file (%s in %s) for more information	Error/ Critical		
0X1A0B	Error inspecting firmware for %s: Internal CMP error - see log file (%s in %s) for more information.	Error/ Critical	An error occurred while discovering the active firmware version.	

Error Code	Description	Type/ Severity	Root cause	Resolution
0X1A09	Smart Component discovery failed for %s using %s: device discovery timed out. Check log files: %s and %s	Error/ Critical	The system was too busy to respond or the Smart Component did not respond to the discovery operation within the specified timeout period.	Retry the discovery operation.
0X1A0C	File %s does not exist	Error/ Critical	The necessary directory or files are missing from the system.	1. Reinstall the CMP installer (HP_CMP), which is located in the `C:\hpnas\Components\CMP` directory. 2. If needed, install the firwmare bundle (HP_CMP_FW MSI), which is located in the same directory.
0X1A0E	Smart Component discovery failed for %s using %s. Check log file %s for more information	Error/ Critical	The Smart Component failed to discover the active version.	Check the logs for more information and proceed accordingly.
0x1A11	Failure communicating with Enclosure Manager (EM) - check that EM is up and can be reached from server: see the log file (%s) for more information.	Error/ Critical	There was a failure to communicate with the Enclosure Manager due to a connectivity issue.	Ensure that the Enclosure Manager is up and connected to the server. Then, retry the operation.
0x1A12	Smart Component discovery failed for %s using %s: Authentication failed while connecting to Enclosure Manager (EM)	Error/ Critical	Enclosure Manager authentication failure	Ensure that the Enclosure Manager keys are generated properly. To do so, open the E5000 Configuration Wizard, navigate to the Enclosure Communication screen and enter the Enclosure Manager password. Then, retry the operation.
0x1034	Flash not attempted for %s using %s: Authentication failed while connecting to Enclosure Manager (EM).	Error/ Critical		
0x1011	Flash failed for %s using %s. Check log files (%s and %s) for further information.	Error/ Critical	Flash failed	Check the logs for more information and proceed accordingly.
0x1012	Flash failed for %s using %s. Check log file (%s) for further information.	Error/ Critical		
0x1015	Smart Component flash failed for %s using %s. Check log files: %s, %s and %s.	Error/ Critical		
0x1013	Flash failed for %s using %s: the device hung on reset.	Error/ Critical	Devices that require a reset after a flash operation (such as I/O modules) hung during the reset process.	Wait for a period of time and then check whether the newer version is reflected by discovering the affected components. If the newer version does not display, retry the operation.
0x1014	Smart Component flash failed for %s using %s: wait for flash status timed out. Check log files: %s, %s and %s.	Error/ Critical	The system was too busy to respond or the Smart Component did not respond to the flash operation within the specified timeout period.	

Error Code	Description	Type/ Severity	Root cause	Resolution
0x1017	Enclosure Manager Firmware Update Failed (EMU can't access server's IP Address). Check log files: %s and %s.	Error/ Critical	The Enclosure Manager cannot be reached from the server.	Ensure that connectivity between the Enclosure Manager and the server is proper and then retry the flash operation.
0x1031	Failed to retrieve HDD information before flashing %s using %s , Please check the log file (%s) for further details.	Error/ Critical	Information about the hard disk drives could not be retrieved prior to flashing the storage.	You must diagnose the storage enclosure and P1210m controller to obtain details of all attached and available hard disk drives to ensure the enclosure is in the OK state.
0x1036	Flash not attempted for %s using %s: Drive model(s) not supported. Check log file (%s) for further information.	Warning/ Normal	The hard disk drive present on the server or the enclosure is not supported with the appliance.	Ensure that you have the supported hardware configuration on appliance.
0x1037	Flash not attempted for %s using %s: P410i Smart Array Controller Cache Board is not present. Cache board is needed to flash the internal server HDD.	Information/ Normal	Flash was not attempted for internal server hard disk drives because the P410i Smart Array Controller cache board was not present. The cache board is required to flash the internal server hard disk drives.	Ensure that the cache board is installed on the servers.

C Troubleshooting

This appendix addresses common issues and provides information to resolve them.

E5000 Configuration Wizard

Issue	Resolution

You are unable to locate the domain controller after entering domain logon information.	• Ensure that the domain name and credentials are valid and entered correctly.
	• Ensure that the domain controller is online.
	• If you cannot ping the domain controller:
	  ◦ Check for and resolve any network topology issues.
	  ◦ Ensure that the network cabling matches one of the scenarios in "Network connections" (page 10) to verify cabling.
	  ◦ Ensure that the DNS information was entered correctly
	  ◦ Verify that you are using the correct address for your connection if the domain controller is dual homed.

Logon failure (unknown user name or bad password)	• Ensure that the user name and password were entered correctly. • Determine if the E5000 Messaging System needs to be added to the domain.
Adding this computer to the domain or workgroup failed. 5 error in the E5000 Configuration Wizard summary	The credentials entered may not have had administrator rights. Manually join the domain with administrator credentials (select **Computer→Properties→Advance Settings**).
A message displays that there is already a host by that name in the domain.	Use a new host name or delete the old computer account from the domain.

Issue	Resolution
The disk LUNs/volumes are not set up correctly.	• Ensure that all disks are fully seated and run the E5000 Configuration Wizard again. • Resolve any disk issues and run the E5000 Configuration Wizard again. **NOTE:** It is normal for the hot plug drives to have their LEDs off. • If an expansion disk enclosure was not powered on: ◦ Power on that expansion disk enclosure. ◦ Run E5000 Configuration Wizard diagnostics. ◦ Follow the procedure for adding storage see ("Adding expansion disk enclosures to an installed messaging system" (page 21)). • If an expansion disk enclosure was not cabled correctly: ◦ Resolve the cable issue. ◦ Run E5000 Configuration Wizard diagnostics. ◦ Follow the procedure for adding storage see ("Adding expansion disk enclosures to an installed messaging system" (page 21)). • If you ordered multiple E5000 Messaging Systems and multiple expansion disk enclosures ensure that you attach the correct expansion disk enclosures to the E5000. Each expansion disk enclosure has a label with the serial number of a specific E5000.
Drives 1-4 are missing or have failed (E5300).	Ignore this error. It is normal for the E5300 to have only 12 drives.
You cannot reach the EMU.	Verify that: • The server blades and the EMU are on the same network. • The server blade and the enclosure network settings are correct. • The EMU card is present and in a healthy state. • The network cables are connected properly.
The replication connection is lost.	• Ensure that the cabling for replication network is correct. • Ensure that both replication ports are on the same subnet.

Exchange Deployment Tool

Issue	Resolution
You do not have an Exchange 2010 license key.	Purchase license keys from Microsoft. License keys are not included with the E5000 Messaging System.
The Exchange 2010 license key you entered was returned as being invalid.	Verify that the key is valid and was entered correctly.
The configuration fails when configuring the sixth database.	Upgrade to an Enterprise Edition Exchange license from Microsoft. The Enterprise Edition is required for six or more databases.

Issue	Resolution
The witness server or share cannot be contacted or used.	• Open the Exchange Management Shell or the Exchange Management Console and run: `set-databaseavailabilitygroup -witnessdirectory "<fsw e.g. c:\fsw>" -witnessserver "newWitnessServer" -id "DAGname"` See the following Microsoft note about permissions: http://technet.microsoft.com/en-us/library/dd297934.aspx • Ensure that the witness server is online and try again. • Resolve any cabling, DNS Name resolution, or other network configuration issues. • On the local machine hosting the FSW check if the drive and path is correct. (for example. c:\fsw).
The Exchange Trusted Subsystem is not a member of the local Administrators group on the specified witness server. [Found in Windows Event Log, setup.log in the DAGtasks folder]	If the witness server you specify is not an Exchange 2010 server, you must add the Exchange Trusted Subsystem USG (Universal Security Grid) to the local Administrators group on the witness server. See the following Microsoft TechNet note: http://technet.microsoft.com/en- us/library/dd351107.aspx
This account does not have domain, enterprise, local or schema administrator permissions.	• Log in using Domain administrator credentials. • Run the E5000 Quick Deployment Tool as an Enterprise Administrator.

Microsoft Exchange

Issue	Resolution
The client cannot connect to Microsoft Exchange and cannot resolve the CAS Array name from the Microsoft Outlook client (for example, nslookup CASarrayname).	• If the mailbox cannot be reached via the Microsoft Outlook Web Application on the E5000 Messaging System, check for CAS array issues. • Verify that the correct CAS array name is being used on the Microsoft Outlook client. • Try “Test E-mail AutoConfiguration” from the Microsoft Outlook client system tray. • Ensure that the DNS server is functioning. • Check if a VPN is required to connect to the Exchange server and if so resolve any VPN issues. • Troubleshoot the network for issues between the server and client.
The client cannot connect to Microsoft Exchange but can resolve the CAS Array name from the Outlook client (for example, nslookup CASarrayname).	• Try **Connection Status→Reconnect** from the Microsoft Outlook client system tray. • Try **Test E-mail AutoConfiguration** from the Microsoft Outlook client system tray. • Try **Tools→Account Settings→Accounts→Repair** from the client’s Microsoft Outlook • If this is a new migration from Exchange 2003, ensure that RPC encryption is enabled. • If the Exchange databases are offline, try to mount and bring the databases online with the Exchange Management Console. • If the E5000 Messaging System disk drives are offline, troubleshoot the disk drives.

Performance

Issue	Resolution
All databases are mounted on one server.	Rebalance the load using using the `RedistributeActiveDatabases.ps1` script
The System Management Home page indicates a hardware issue.	• If the issue is with the 1210m controller, determine if a SAS I/O module needs to be replaced or if one blade server needs to be removed. Then, rebalance the load using the `RedistributeActiveDatabases.ps1` script. • If a disk has failed, replace the failed drive during non-peak hours to avoid performance issues during the rebuild. • If the 1210m cache is listed as degraded or failed, replace the SuperCapacitor or the cache module and rebalanced the load. Use the `RedistributeActiveDatabases.ps1` script to rebalanced the load.
The Exchange Performance Analyzer found an issue.	Follow the instructions in the Exchange Performance Analyzer to fix the issues.
The Exchange Best Practices Analyzer found an issue.	Follow the instructions in the Exchange Best Practices Analyzer to fix the issues.

D Regulatory compliance notices

This section contains regulatory notices for the HP _____.

Regulatory compliance identification numbers

For the purpose of regulatory compliance certifications and identification, this product has been assigned a unique regulatory model number. The regulatory model number can be found on the product nameplate label, along with all required approval markings and information. When requesting compliance information for this product, always refer to this regulatory model number. The regulatory model number is not the marketing name or model number of the product.

Product specific information:

HP _____

Regulatory model number: _____

FCC and CISPR classification: _____

These products contain laser components. See Class 1 laser statement in the "Laser compliance notices" (page 184) section.

Federal Communications Commission notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (for example, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

FCC rating label

The FCC rating label on the device shows the classification (A or B) of the equipment. Class B devices have an FCC logo or ID on the label. Class A devices do not have an FCC logo or ID on the label. After you determine the class of the device, refer to the corresponding statement.

Class A equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user must correct the interference at personal expense.

Class B equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference does not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment

off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit that is different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Modification

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Hewlett-Packard Company may void the user's authority to operate the equipment.

Cables

When provided, connections to this device must be made with shielded cables with metallic RFI/EMI connector hoods in order to maintain compliance with FCC Rules and Regulations.

Canadian notice (Avis Canadien)

Class A equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la class A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la class B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union notice

This product complies with the following EU directives:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC

Compliance with these directives implies conformity to applicable harmonized European standards (European Norms) which are listed on the EU Declaration of Conformity issued by Hewlett-Packard for this product or product family.

This compliance is indicated by the following conformity marking placed on the product:

CE	This marking is valid for non-Telecom products and EU harmonized Telecom products (e.g., Bluetooth).

Certificates can be obtained from http://www.hp.com/go/certificates.

Hewlett-Packard GmbH, HQ-TRE, Herrenberger Strasse 140, 71034 Boeblingen, Germany

Japanese notices

Japanese VCCI-A notice

この装置は，クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。　　VCCI－A

Japanese VCCI-B notice

この装置は，クラスB情報技術装置です。この装置は，家庭環境で使用することを目的としていますが，この装置がラジオやテレビジョン受信機に近接して使用されると，受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。　　VCCI－B

Japanese VCCI marking

Japanese power cord statement

製品には、同梱された電源コードをお使い下さい。
同梱された電源コードは、他の製品では使用出来ません。

Please use the attached power cord.
The attached power cord is not allowed to use with other product.

Korean notices

Class A equipment

A급 기기 (업무용 정보통신기기)

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이 점을 주의하시기 바라며, 만약 잘못판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Class B equipment

B급 기기 (가정용 정보통신기기)

이 기기는 가정용으로 전자파적합등록을 한 기기로서 주거지역에서는 물론 모든지역에서 사용할 수 있습니다.

Taiwanese notices

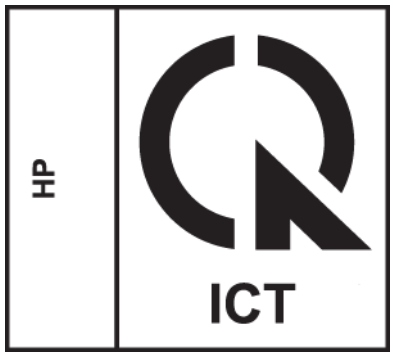
BSMI Class A notice

警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Taiwan battery recycle statement

Vietnamese notice



Laser compliance notices

English laser notice

This device may contain a laser that is classified as a Class 1 Laser Product in accordance with U.S. FDA regulations and the IEC 60825-1. The product does not emit hazardous laser radiation.

⚠ **WARNING!** Use of controls or adjustments or performance of procedures other than those specified herein or in the laser product's installation guide may result in hazardous radiation exposure. To reduce the risk of exposure to hazardous radiation:

- Do not try to open the module enclosure. There are no user-serviceable components inside.
- Do not operate controls, make adjustments, or perform procedures to the laser device other than those specified herein.
- Allow only HP Authorized Service technicians to repair the unit.

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States.

Dutch laser notice

WAARSCHUWING: dit apparaat bevat mogelijk een laser die is geclassificeerd als een laserproduct van Klasse 1 overeenkomstig de bepalingen van de Amerikaanse FDA en de richtlijn IEC 60825-1. Dit product geeft geen gevaarlijke laserstraling af.

Als u bedieningselementen gebruikt, instellingen aanpast of procedures uitvoert op een andere manier dan in deze publicatie of in de installatiehandleiding van het laserproduct wordt aangegeven, loopt u het risico te worden blootgesteld aan gevaarlijke straling. Het risico van blootstelling aan gevaarlijke straling beperkt u als volgt:

- Probeer de behuizing van de module niet te openen. U mag zelf geen onderdelen repareren.
- Gebruik voor de laserapparatuur geen andere knoppen of instellingen en voer geen andere aanpassingen of procedures uit dan die in deze handleiding worden beschreven.
- Alleen door HP geautoriseerde technici mogen het apparaat repareren.

French laser notice

AVERTISSEMENT : cet appareil peut être équipé d'un laser classé en tant que Produit laser de classe 1 et conforme à la réglementation de la FDA américaine et à la norme 60825-1 de l'IEC. Ce produit n'émet pas de rayonnement dangereux.

L'utilisation de commandes, de réglages ou de procédures autres que ceux qui sont indiqués ici ou dans le manuel d'installation du produit laser peut exposer l'utilisateur à des rayonnements dangereux. Pour réduire le risque d'exposition à des rayonnements dangereux :

- Ne tentez pas d'ouvrir le boîtier renfermant l'appareil laser. Il ne contient aucune pièce dont la maintenance puisse être effectuée par l'utilisateur.
- Tout contrôle, réglage ou procédure autre que ceux décrits dans ce chapitre ne doivent pas être effectués par l'utilisateur.
- Seuls les Mainteneurs Agréés HP sont habilités à réparer l'appareil laser.

German laser notice

VORSICHT: Dieses Gerät enthält möglicherweise einen Laser, der nach den US-amerikanischen FDA-Bestimmungen und nach IEC 60825-1 als Laserprodukt der Klasse 1 zertifiziert ist. Gesundheitsschädliche Laserstrahlen werden nicht emittiert.

Die Anleitungen in diesem Dokument müssen befolgt werden. Bei Einstellungen oder Durchführung sonstiger Verfahren, die über die Anleitungen in diesem Dokument bzw. im Installationshandbuch des Lasergeräts hinausgehen, kann es zum Austritt gefährlicher Strahlung kommen. Zur Vermeidung der Freisetzung gefährlicher Strahlungen sind die folgenden Punkte zu beachten:

- Versuchen Sie nicht, die Abdeckung des Lasermoduls zu öffnen. Im Inneren befinden sich keine Komponenten, die vom Benutzer gewartet werden können.
- Benutzen Sie das Lasergerät ausschließlich gemäß den Anleitungen und Hinweisen in diesem Dokument.
- Lassen Sie das Gerät nur von einem HP Servicepartner reparieren.

Italian laser notice

AVVERTENZA: AVVERTENZA Questo dispositivo può contenere un laser classificato come prodotto laser di Classe 1 in conformità alle normative US FDA e IEC 60825-1. Questo prodotto non emette radiazioni laser pericolose.

L'eventuale esecuzione di comandi, regolazioni o procedure difformi a quanto specificato nella presente documentazione o nella guida di installazione del prodotto può causare l'esposizione a radiazioni nocive. Per ridurre i rischi di esposizione a radiazioni pericolose, attenersi alle seguenti precauzioni:

- Non cercare di aprire il contenitore del modulo. All'interno non vi sono componenti soggetti a manutenzione da parte dell'utente.
- Non eseguire operazioni di controllo, regolazione o di altro genere su un dispositivo laser ad eccezione di quelle specificate da queste istruzioni.
- Affidare gli interventi di riparazione dell'unità esclusivamente ai tecnici dell'Assistenza autorizzata HP.

Japanese laser notice

警告:本製品には、US FDA規則およびIEC 60825-1に基づくClass 1レーザー製品が含まれている場合があります。本製品は人体に危険なレーザー光は発しません。

本書およびレーザー製品のインストール ガイドに示されている以外の方法で制御、調整、使用した場合、人体に危険な光線にさらされる場合があります。人体に危険な光線にさらされないため、以下の項目を守ってください。

- モジュール エンクロージャを開けないでください。ユーザーが取り扱えるコンポーネントは含まれていません。
- 本書に示されている以外の方法で、レーザー デバイスを制御、調整、使用しないでください。
- HPの正規サービス技術者のみが本ユニットの修理を許可されています。

Spanish laser notice

ADVERTENCIA: Este dispositivo podría contener un láser clasificado como producto de láser de Clase 1 de acuerdo con la normativa de la FDA de EE.UU. e IEC 60825-1. El producto no emite radiaciones láser peligrosas.

El uso de controles, ajustes o manipulaciones distintos de los especificados aquí o en la guía de instalación del producto de láser puede producir una exposición peligrosa a las radiaciones. Para evitar el riesgo de exposición a radiaciones peligrosas:

- No intente abrir la cubierta del módulo. Dentro no hay componentes que el usuario pueda reparar.
- No realice más operaciones de control, ajustes o manipulaciones en el dispositivo láser que los aquí especificados.
- Sólo permita reparar la unidad a los agentes del servicio técnico autorizado HP.

Recycling notices

English recycling notice

Disposal of waste equipment by users in private household in the European Union

This symbol means do not dispose of your product with your other household waste. Instead, you should protect human health and the environment by handing over your waste equipment to a designated collection point for the recycling of waste electrical and electronic equipment. For more information, please contact your household waste disposal service

Bulgarian recycling notice

Изхвърляне на отпадъчно оборудване от потребители в частни домакинства в Европейския съюз

Този символ върху продукта или опаковката му показва, че продуктът не трябва да се изхвърля заедно с другите битови отпадъци. Вместо това, трябва да предпазите човешкото здраве и околната среда, като предадете отпадъчното оборудване в предназначен за събирането му пункт за рециклиране на неизползваемо електрическо и електронно борудване. За допълнителна информация се свържете с фирмата по чистота, чиито услуги използвате.

Czech recycling notice

Likvidace zařízení v domácnostech v Evropské unii

Tento symbol znamená, že nesmíte tento produkt likvidovat spolu s jiným domovním odpadem. Místo toho byste měli chránit lidské zdraví a životní prostředí tím, že jej předáte na k tomu určené sběrné pracoviště, kde se zabývají recyklací elektrického a elektronického vybavení. Pro více informací kontaktujte společnost zabývající se sběrem a svozem domovního odpadu.

Danish recycling notice

Bortskaffelse af brugt udstyr hos brugere i private hjem i EU

Dette symbol betyder, at produktet ikke må bortskaffes sammen med andet husholdningsaffald. Du skal i stedet den menneskelige sundhed og miljøet ved at afl evere dit brugte udstyr på et dertil beregnet indsamlingssted for af brugt, elektrisk og elektronisk udstyr. Kontakt nærmeste renovationsafdeling for yderligere oplysninger.

Dutch recycling notice

Inzameling van afgedankte apparatuur van particuliere huishoudens in de Europese Unie

Dit symbool betekent dat het product niet mag worden gedeponeerd bij het overige huishoudelijke afval. Bescherm de gezondheid en het milieu door afgedankte apparatuur in te leveren bij een hiervoor bestemd inzamelpunt voor recycling van afgedankte elektrische en elektronische apparatuur. Neem voor meer informatie contact op met uw gemeentereinigingsdienst.

Estonian recycling notice

Äravisatavate seadmete likvideerimine Euroopa Liidu eramajapidamistes

See märk näitab, et seadet ei tohi visata olmeprügi hulka. Inimeste tervise ja keskkonna säästmise nimel tuleb äravisatav toode tuua elektriliste ja elektrooniliste seadmete käitlemisega egelevasse kogumispunkti. Küsimuste korral pöörduge kohaliku prügikäitlusettevõtte poole.

Finnish recycling notice

Kotitalousjätteiden hävittäminen Euroopan unionin alueella

Tämä symboli merkitsee, että laitetta ei saa hävittää muiden kotitalousjätteiden mukana. Sen sijaan sinun on suojattava ihmisten terveyttä ja ympäristöä toimittamalla käytöstä poistettu laite sähkö- tai elektroniikkajätteen kierrätyspisteeseen. Lisätietoja saat jätehuoltoyhtiöltä.

French recycling notice

Mise au rebut d'équipement par les utilisateurs privés dans l'Union Européenne

Ce symbole indique que vous ne devez pas jeter votre produit avec les ordures ménagères. Il est de votre responsabilité de protéger la santé et l'environnement et de vous débarrasser de votre équipement en le remettant à une déchetterie effectuant le recyclage des équipements électriques et électroniques. Pour de plus amples informations, prenez contact avec votre service d'élimination des ordures ménagères.

German recycling notice

Entsorgung von Altgeräten von Benutzern in privaten Haushalten in der EU

Dieses Symbol besagt, dass dieses Produkt nicht mit dem Haushaltsmüll entsorgt werden darf. Zum Schutze der Gesundheit und der Umwelt sollten Sie stattdessen Ihre Altgeräte zur Entsorgung einer dafür vorgesehenen Recyclingstelle für elektrische und elektronische Geräte übergeben. Weitere Informationen erhalten Sie von Ihrem Entsorgungsunternehmen für Hausmüll.

Greek recycling notice

Απόρριψη άχρηστου εξοπλισμού από ιδιώτες χρήστες στην Ευρωπαϊκή 'Ενωση

Αυτό το σύμβολο σημαίνει ότι δεν πρέπει να απορρίψετε το προϊόν με τα λοιπά οικιακά απορρίμματα. Αντίθετα, πρέπει να προστατέψετε την ανθρώπινη υγεία και το περιβάλλον παραδίδοντας τον άχρηστο εξοπλισμό σας σε εξουσιοδοτημένο σημείο συλλογής για την ανακύκλωση άχρηστου ηλεκτρικού και ηλεκτρονικού εξοπλισμού. Για περισσότερες πληροφορίες, επικοινωνήστε με την υπηρεσία απόρριψης απορριμμάτων της περιοχής σας.

Hungarian recycling notice

A hulladék anyagok megsemmisítése az Európai Unió háztartásaiban

Ez a szimbólum azt jelzi, hogy a készüléket nem szabad a háztartási hulladékkal együtt kidobni. Ehelyett a leselejtezett berendezéseknek az elektromos vagy elektronikus hulladék átvételére kijelölt helyen történő beszolgáltatásával megóvja az emberi egészséget és a környezetet.További információt a helyi köztisztasági vállalattól kaphat.

Italian recycling notice

Smaltimento di apparecchiature usate da parte di utenti privati nell'Unione Europea

Questo simbolo avvisa di non smaltire il prodotto con i normali rifi uti domestici. Rispettare la salute umana e l'ambiente conferendo l'apparecchiatura dismessa a un centro di raccolta designato per il riciclo di apparecchiature elettroniche ed elettriche. Per ulteriori informazioni, rivolgersi al servizio per lo smaltimento dei rifi uti domestici.

Latvian recycling notice

Europos Sąjungos namų ūkio vartotojų įrangos atliekų šalinimas

Šis simbolis nurodo, kad gaminio negalima išmesti kartu su kitomis buitinėmis atliekomis. Kad apsaugotumėte žmonių sveikatą ir aplinką, pasenusią nenaudojamą įrangą turite nuvežti į elektrinių ir elektroninių atliekų surinkimo punktą. Daugiau informacijos teiraukitės buitinių atliekų surinkimo tarnybos.

Lithuanian recycling notice

Nolietotu iekārtu iznīcināšanas noteikumi lietotājiem Eiropas Savienības privātajās mājsaimniecībās

Šis simbols norāda, ka ierīci nedrīkst utilizēt kopā ar citiem mājsaimniecības atkritumiem. Jums jārūpējas par cilvēku veselības un vides aizsardzību, nododot lietoto aprīkojumu otrreizējai pārstrādei īpašā lietotu elektrisko un elektronisko ierīču savākšanas punktā. Lai iegūtu plašāku informāciju, lūdzu, sazinieties ar savu mājsaimniecības atkritumu likvidēšanas dienestu.

Polish recycling notice

Utylizacja zużytego sprzętu przez użytkowników w prywatnych gospodarstwach domowych w krajach Unii Europejskiej

Ten symbol oznacza, że nie wolno wyrzucać produktu wraz z innymi domowymi odpadkami. Obowiązkiem użytkownika jest ochrona zdrowa ludzkiego i środowiska przez przekazanie zużytego sprzętu do wyznaczonego punktu zajmującego się recyklingiem odpadów powstałych ze sprzętu elektrycznego i elektronicznego. Więcej informacji można uzyskać od lokalnej firmy zajmującej wywozem nieczystości.

Portuguese recycling notice

Descarte de equipamentos usados por utilizadores domésticos na União Europeia

Este símbolo indica que não deve descartar o seu produto juntamente com os outros lixos domiciliares. Ao invés disso, deve proteger a saúde humana e o meio ambiente levando o seu equipamento para descarte em um ponto de recolha destinado à reciclagem de resíduos de equipamentos eléctricos e electrónicos. Para obter mais informações, contacte o seu serviço de tratamento de resíduos domésticos.

Romanian recycling notice

Casarea echipamentului uzat de către utilizatorii casnici din Uniunea Europeană

Acest simbol înseamnă să nu se arunce produsul cu alte deşeuri menajere. În schimb, trebuie să protejaţi sănătatea umană şi mediul predând echipamentul uzat la un punct de colectare desemnat pentru reciclarea echipamentelor electrice şi electronice uzate. Pentru informaţii suplimentare, vă rugăm să contactaţi serviciul de eliminare a deşeurilor menajere local.

Slovak recycling notice

Likvidácia vyradených zariadení používateľmi v domácnostiach v Európskej únii

Tento symbol znamená, že tento produkt sa nemá likvidovať s ostatným domovým odpadom. Namiesto toho by ste mali chrániť ľudské zdravie a životné prostredie odovzdaním odpadového zariadenia na zbernom mieste, ktoré je určené na recykláciu odpadových elektrických a elektronických zariadení. Ďalšie informácie získate od spoločnosti zaoberajúcej sa likvidáciou domového odpadu.

Spanish recycling notice

Eliminación de los equipos que ya no se utilizan en entornos domésticos de la Unión Europea

Este símbolo indica que este producto no debe eliminarse con los residuos domésticos. En lugar de ello, debe evitar causar daños a la salud de las personas y al medio ambiente llevando los equipos que no utilice a un punto de recogida designado para el reciclaje de equipos eléctricos y electrónicos que ya no se utilizan. Para obtener más información, póngase en contacto con el servicio de recogida de residuos domésticos.

Swedish recycling notice

Hantering av elektroniskt avfall för hemanvändare inom EU

Den här symbolen innebär att du inte ska kasta din produkt i hushållsavfallet. Värna i stället om natur och miljö genom att lämna in uttjänt utrustning på anvisad insamlingsplats. Allt elektriskt och elektroniskt avfall går sedan vidare till återvinning. Kontakta ditt återvinningsföretag för mer information.

Turkish recycling notice

Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

Battery replacement notices

Dutch battery notice

Verklaring betreffende de batterij

WAARSCHUWING: dit apparaat bevat mogelijk een batterij.

- Probeer de batterijen na het verwijderen niet op te laden.
- Stel de batterijen niet bloot aan water of temperaturen boven 60° C.
- De batterijen mogen niet worden beschadigd, gedemonteerd, geplet of doorboord.
- Zorg dat u geen kortsluiting veroorzaakt tussen de externe contactpunten en laat de batterijen niet in aanraking komen met water of vuur.
- Gebruik ter vervanging alleen door HP goedgekeurde batterijen.

Batterijen, accu's en accumulators mogen niet worden gedeponeerd bij het normale huishoudelijke afval. Als u de batterijen/accu's wilt inleveren voor hergebruik of op de juiste manier wilt vernietigen, kunt u gebruik maken van het openbare inzamelingssysteem voor klein chemisch afval of ze terugsturen naar HP of een geautoriseerde HP Business of Service Partner.

Neem contact op met een geautoriseerde leverancier of een Business of Service Partner voor meer informatie over het vervangen of op de juiste manier vernietigen van accu's.

French battery notice

Avis relatif aux piles

AVERTISSEMENT : cet appareil peut contenir des piles.

- N'essayez pas de recharger les piles après les avoir retirées.
- Évitez de les mettre en contact avec de l'eau ou de les soumettre à des températures supérieures à 60°C.
- N'essayez pas de démonter, d'écraser ou de percer les piles.
- N'essayez pas de court-circuiter les bornes de la pile ou de jeter cette dernière dans le feu ou l'eau.
- Remplacez les piles exclusivement par des pièces de rechange HP prévues pour ce produit.

Les piles, modules de batteries et accumulateurs ne doivent pas être jetés avec les déchets ménagers. Pour permettre leur recyclage ou leur élimination, veuillez utiliser les systèmes de collecte publique ou renvoyez-les à HP, à votre Partenaire Agréé HP ou aux agents agréés.

Contactez un Revendeur Agréé ou Mainteneur Agréé pour savoir comment remplacer et jeter vos piles.

German battery notice

Hinweise zu Batterien und Akkus

VORSICHT: Dieses Produkt enthält unter Umständen eine Batterie oder einen Akku.

- Versuchen Sie nicht, Batterien und Akkus außerhalb des Gerätes wieder aufzuladen.
- Schützen Sie Batterien und Akkus vor Feuchtigkeit und Temperaturen über 60°.
- Verwenden Sie Batterien und Akkus nicht missbräuchlich, nehmen Sie sie nicht auseinander und vermeiden Sie mechanische Beschädigungen jeglicher Art.
- Vermeiden Sie Kurzschlüsse, und setzen Sie Batterien und Akkus weder Wasser noch Feuer aus.
- Ersetzen Sie Batterien und Akkus nur durch die von HP vorgesehenen Ersatzteile.

Batterien und Akkus dürfen nicht über den normalen Hausmüll entsorgt werden. Um sie der Wiederverwertung oder dem Sondermüll zuzuführen, nutzen Sie die öffentlichen Sammelstellen, oder setzen Sie sich bezüglich der Entsorgung mit einem HP Partner in Verbindung.

Weitere Informationen zum Austausch von Batterien und Akkus oder zur sachgemäßen Entsorgung erhalten Sie bei Ihrem HP Partner oder Servicepartner.

Italian battery notice

Istruzioni per la batteria

AVVERTENZA: Questo dispositivo può contenere una batteria.

- Non tentare di ricaricare le batterie se rimosse.
- Evitare che le batterie entrino in contatto con l'acqua o siano esposte a temperature superiori a 60° C.
- Non smontare, schiacciare, forare o utilizzare in modo improprio la batteria.
- Non accorciare i contatti esterni o gettare in acqua o sul fuoco la batteria.
- Sostituire la batteria solo con i ricambi HP previsti a questo scopo.

Le batterie e gli accumulatori non devono essere smaltiti insieme ai rifiuti domestici. Per procedere al riciclaggio o al corretto smaltimento, utilizzare il sistema di raccolta pubblico dei rifiuti o restituirli a HP, ai Partner Ufficiali HP o ai relativi rappresentanti.

Per ulteriori informazioni sulla sostituzione e sullo smaltimento delle batterie, contattare un Partner Ufficiale o un Centro di assistenza autorizzato.

Japanese battery notice

バッテリに関する注意

警告:本製品はバッテリを内蔵している場合があります。

- バッテリを取り外している場合は、充電しないでください。
- バッテリを水にさらしたり、60°C (140°F) 以上の温度にさらさないでください。
- バッテリを誤用、分解、破壊したり、穴をあけたりしないでください。
- 外部極を短絡させたり、火や水に投棄しないでください。
- バッテリを交換する際は、HP指定の製品と交換してください。

バッテリ、バッテリ パック、蓄電池は一般の家庭廃棄物と一緒に廃棄しないでください。リサイクルまたは適切に廃棄するため、公共の収集システム、HP、HPパートナー、またはHPパートナーの代理店にお送りください。

バッテリ交換および適切な廃棄方法についての情報は、HPのサポート窓口にお問い合わせください。

Spanish battery notice

Declaración sobre las baterías

ADVERTENCIA: Este dispositivo podría contener una batería.

- No intente recargar las baterías si las extrae.
- Evite el contacto de las baterías con agua y no las exponga a temperaturas superiores a los 60 °C (140 °F).
- No utilice incorrectamente, ni desmonte, aplaste o pinche las baterías.
- No cortocircuite los contactos externos ni la arroje al fuego o al agua.
- Sustituya las baterías sólo por el repuesto designado por HP.

Las baterías, los paquetes de baterías y los acumuladores no se deben eliminar junto con los desperdicios generales de la casa. Con el fin de tirarlos al contenedor de reciclaje adecuado, utilice los sistemas públicos de recogida o devuélvalas a HP, un distribuidor autorizado de HP o sus agentes.

Para obtener más información sobre la sustitución de la batería o su eliminación correcta, consulte con su distribuidor o servicio técnico autorizado.

Glossary

CAS	Client Access Server. The client access server role is one of five distinct server roles for Microsoft Exchange Server 2010. It supports the Outlook Web Access and Microsoft Exchange ActiveSync client applications, and the Post Office Protocol version 3 (POP3) and Internet Message Access Protocol version 4rev1 (IMAP4) protocols. The client access server role also provides access to free/busy data by using the Availability service and enables certain clients to download automatic configuration settings from the Autodiscover service. For more information, see the Microsoft Technet article, *Understanding Client Access* at http://technet.microsoft.com/en-us/library/bb124915.aspx.
CMP	Common Management Platform. A software tool that manages the firmware, storage and diagnostics for the HP E5000.
CSP	Common Storage Platform. A term to describe the system hardware.
CSR	Customer self repair.
DAG	Database Availability Group. A database availability group is the base component of the high availability and site resilience framework built into Microsoft Exchange Server 2010. A DAG is a group of up to 16 Mailbox servers that hosts a set of databases and provides automatic database-level recovery from failures that affect individual servers or databases. For more information, see the Microsoft Technet article, *Understanding Database Availability Groups* at http://technet.microsoft.com/en-us/library/dd979799.aspx.
ECW	E5000 Configuration Wizard
EDT	Exchange Deployment Tool
EMU	Enclosure Management Unit
ESD	Electrostatic discharge. The emission of a potentially harmful static electric voltage as a result of improper grounding.
FRU	Field replaceable unit. An assembly component that is designed to be replaced on site, without the system having to be returned to the manufacturer for repair.
OWA	Outlook Web App. The Web browser-based version of Microsoft Outlook. Enables users on the road to access their email, contacts, and calendar from any web browser without having to run a preconfigured Outlook client program.
SAID	Service Agreement Identifier.
SCOM	Systems Center Operations Manager
SIM	Systems Insight Manager
SMH	System Management Homepage
Witness Server	A server used for high availability in conjunction with database availability groups. For more information, see the Microsoft Technet article, *Create a Database Availability Group* at http://technet.microsoft.com/en-us/library/dd351172.aspx.

Index

Symbols

1210m cache module
  removing and replacing, 121
2-port 1GB Ethernet I/O module
  LED behavior, 51
2-port 1GB Mezz A and B I/O module
  LED behavior, 52

B

battery replacement notices, 192
best practices
  for removing and replacing hardware components, 69
Best Practices Analyzer
  running, 32

C

cache module controller
  LED behavior, 50
Canadian notice, 181
capacitor pack
  removing and replacing, 124
chassis switches
  LED behavior, 53
component replacement videos
  accessing, 69
Configuration Wizard *see* E5000 Messaging System
contacting HP, 131
controller and controller server blade components
  removing and replacing, 119
customer self repair *see* removing and replacing hardware components

D

Disposal of waste equipment, European Union, 186
documentation
  providing feedback on, 133
drive drawer
  removing and replacing, 99
drive drawer hard drive
  removing and replacing, 104
drive drawer rails (side or bottom)
  removing and replacing, 106
drive fan
  LED behavior, 54
  removing and replacing, 83

E

E5000 Messaging System
  accessing, 20
  adding expansion disk enclosures, 21
  Configuration Wizard, 23
  configuring system software, 23
  exploded view, 70
  features, 7
  front view, 7
  hardware models, 7
  installing hardware, 14
  installing software updates, 61
  kit contents, 14
  locating product number, 14
  locating SAID number, 14
  locating serial number, 14
  monitoring tools, 34
  powering off, 67
  powering on, 17, 67
  preparing to install, 7, 10
  rear view, 8
  recovery, 128
  restoring factory image, 128
  software components, 8
  troubleshooting tools, 34
  unpacking, 14
  update file, 61
  updating system software and firmware, 61
  upgradng system software and firmware, 61
E5300 hardware model
  adding hard drives, 21
  connection options, 11
  network configuration, 12
E5500/E5700 hardware model
  EMU connection options, 11
  network configuration, 12
electrostatic discharge
  avoiding, 73
EMU
  CLI reference, 134
  configuring management processor, 17
  connection options for E5300 hardware model, 11
  connection options for E5500/E5700 hardware model, 11
  LED behavior, 51
  logging in, 55
  network connections, 10
  network port locations, 10
  removing and replacing, 89
  using CLI SHOW commands for troubleshooting, 55
Enclosure Manager Unit (EMU) *see* EMU
enclosure rails
  removing and replacing, 111
Ethernet I/O module
  removing and replacing, 86
European Union notice, 181
Event Notifier
  configuring for proemail (SMTP) event notification, 34
Exchange Deployment Tool
  Microsoft Exchange Server 2010, 26
expansion disk enclosure
  adding to installed E5000 Messaging System, 21

F

factory image

restoring the system, 128
failure of component
verifying, 73
Federal Communications Commission notice, 180
firmware
checking for version upgrade, 45, 66
updating component, 62
upgrading, 61
front bezel (full)
removing and replacing, 95
front bezel (standard)
removing and replacing, 93
front LED display board
LED behavior, 48
front LED display board (full)
removing and replacing, 97
front LED display board in the rack (standard)
removing and replacing, 96

H
hard drive
adding to E5300 hardware model, 21
LED behavior, 49
wait time after replacement, 74
hardware
upgrading, 61
hardware components
removing and replacing, 69
upgrading, 67
HP E5000 Configuration Wizard
Configuration Wizard, 23

I
I/O module
LED behavior, 53
iLO
configuring management processor, 17
Insight Remote Support, 58
implementing, 59
installing E5000 Messaging System hardware, 14

J
Japanese notices, 182
Jetstress *see* Microsoft Exchange Jetstress and Load Generator

K
kit contents
E5000 Messaging System, 14
Korean notices, 182

L
laser compliance notices, 184
LED
2-port 1 GB Ethernet I/O module, 51
2-port 1 GB Ethernet, Mezz A and B I/O module, 52
cache module controller, 50
chassis switches and indicator, 53
EMU, 51
fan, 54
front LED display board, 48
hard drive, 49
I/O module, 53
power supply, 52
server blade, 47
Load Generator *see* Microsoft Exchange Jetstress and Load Generator

M
maintenance
SAID, 60
warranty entitlement labels, 60
management processor
configuring EMU, 17
configuring iLO, 17
Mezzanine NIC
removing and replacing, 126
Microsoft Exchange Jetstress and Load Generator, 32
Microsoft Exchange Server 2010
deploying, 26
Exchange Deployment Tool, 26
network requirements, 10
Microsoft Systems Center Operations Manager (SCOM)
using for monitoring and troubleshooting, 59
midplane board
removing and replacing, 78
monitoring tools, 34
component LEDs, 47
EMU CLI SHOW commands, 55
Event Notifer, 34
Microsoft Systems Center Operations Manager (SCOM), 59
notification alerts, 34
System Management Homepage, 38
System Manager, 42

N
network configuration
E5300 hardware model, 12
E5500/E5700 hardware model, 12
network connections
EMU, 10
network requirements
Microsoft Exchange Server 2010, 10
notification alerts, 34
sample error messages, 34

O
OpsMgr *see* Microsoft Systems Center Operations Manager (SCOM)

P
PCIe module
removing and replacing, 87
power off procedure, 67
power on procedure, 17, 67
power supply
LED behavior, 52

removing and replacing, 85
power UID button assembly
removing and replacing, 84
product number
locating , 14

R
rack rails
removing and replacing, 116
Rack stability
HP, 132
recovering the system, 128
system recovery DVD, 128
USB flash drive, 128
recycling notices, 186
regulatory compliance
Canadian notice, 181
European Union notice, 181
identification numbers, 180
Japanese notices, 182
Korean notices, 182
laser, 184
recycling notices, 186
Taiwanese notices, 183
Vietnamese notice, 183
remote support *see* Insight Remote Support
removing and replacing hardware components, 69
1210m cache module, 121
best practices, 69
capacitor pack, 124
controller and controller server blade components, 119
drive drawer, 99
drive drawer hard drive, 104
drive drawer rails (side or bottom), 106
drive fan, 83
EMU, 89
enclosure rails, 111
Ethernet I/O module, 86
front bezel (full), 95
front bezel (standard), 93
front LED display board (full), 97
front LED display board in the rack (standard), 96
Mezzanine NIC, 126
midplane board, 78
PCIe module, 87
power supply, 85
power UID button assembly, 84
rack rails, 116
SAS cable, 81
SAS I/O module, 81
server airflow baffle, 92
server blade, 116
server blade backplane, 90
server blade hard drive, 117
server interposter board, 76
replaceable part
identifying, 70
restoring the system
factory image, 128
in non-production environments, 130
in production environments, 130
managing disks after restoration, 129

S
SAID
locating number, 14
obtaining, 60
SAS cable
removing and replacing, 81
SAS I/O module
removing and replacing, 81
serial number
locating, 14
server airflow baffle
removing and replacing, 92
server blade
LED behavior, 47
removing and replacing, 116
server blade backplane
removing and replacing, 90
server blade hard drive
removing and replacing, 117
server interposter board
removing and replacing, 76
Service Agreement ID *see* SAID
spare part
hot, warm, cold swap, 73
identifying, 70
verifying proper operation after replacement, 74
Subscriber's Choice for Business, 131
Support websites
contacting HP, 131
HP, 58, 131
Microsoft, 132
Subscribers's Choice for Business, 131
Subscription service, 131
system fan
LED behavior, 54
System Management Homepage
description, 38
Help menu, 38
main page, 38
starting, 38
Storage System page, 41
System Manager
description, 42
Exchange Status tab, 44
Firmware tab, 45
Hardware Status tab, 43
Reports tab, 46
System Summary tab, 43
system recovery
DVD, 128
USB flash drive, 128
system software
updating, 61
upgrading, 61

T

Taiwanese notices, 183
technical support *see* Support websites
troubleshooting tools, 34
  component LEDs, 47
  EMU CLI SHOW commands, 55
  Event Notifer, 34
  Insight Remote Support, 58
  Microsoft Systems Center Operations Manager (SCOM), 59
  notification alerts, 34
  System Management Homepage, 38
  System Manager, 42

U

unpacking the E5000 Messaging System, 14
updating
  system software and firmware, 61
updating messaging system software
  , 61
upgrading
  system software and firmware, 61
upgrading hardware components, 67
USB flash drive
  system recovery, 128

V

Vietnamese notice, 183

W

warranty entitlement labels
  locations, 60